

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	:	
James B. Melesky	:	
	:	
Appln. No. 10/024,478	:	Art Unit: 3637
	:	
Filed: 21 December 2001	:	Examiner: A. Phi Dieu Tran
	:	
For: INSULATION COVER FOR ATTIC	:	Docket No.: 82/1376US
CLOSURES	:	Formerly: 13811

Commissioner for Patents  
Alexandria, VA 22313

**AMENDED APPEAL BRIEF**

This is an appeal from the final rejection of the above-identified application made in the Office Action dated September 11, 2007. A Notice of Appeal was filed on December 10, 2007.

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**I. REAL PARTY IN INTEREST**

The real party in interest in this appeal is James B. Melesky.

## **II. RELATED APPEALS AND INTERFERENCES**

Appellant is unaware of any pending appeals or interferences which may directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.



### **III. STATUS OF CLAIMS**

The status of the claims is as follows: claims 14, 22, 24, 25, 27-29, and 31-32 are rejected, claims 17 and 21 are allowed, and claims 1-13, 15, 16, 28-23, 26, and 30 have been cancelled. This is an appeal from the final rejection of pending claims 14, 22, 24, 25, 27-29, and 31-32; claim 14 is an independent claim. The claims on appeal are set forth in full in the Appendix to this Brief.

#### **IV. STATUS OF AMENDMENTS**

None - Appellant did not seek to enter any amendments after the final Office Action dated September 11, 2007.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

This section provides a concise explanation of the subject matter defined in each of the independent claims involved in this appeal, namely claim 14. This claim provides a two piece cover assembly 10 in combination with an existing attic access opening including a trap door, such as a ceiling hatch and/or pull down attic ladder. Specification (“Spec.”), para. [0001]; FIGS. 1, 5, 7. The cover assembly comprises two pieces: a continuous frame 20 that rests on a structure surrounding the attic opening above the trap door and encloses the existing attic opening within a frame opening therethrough; and a removable closure member 26 that is detachable and removable from the frame, which comprises two portions: a depending central body portion 27 sized and shaped to snugly engage and form a first continuous seal with the frame inside the frame opening, and an upper portion 28 forming flanges which engage the upper surfaces of the frame forming a second continuous seal orthogonal to the first seal. Spec., para. [0008], [0015-16], [0038-39].

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1) Whether claims 14 and 27-29 are unpatentable under 35 U.S.C. 103(a) over Waters et al. (4344505) in view of Helbig (4312423).

2) Whether claim 22 is unpatentable under 35 U.S.C. § 103(a) over Waters et al. in view of Helbig as the Examiner applied it to claim 14, and further in view of Anghinetti et al. (3896595).

3) Whether claims 24 and 31-32 are unpatentable under 35 U.S.C. 103(a) over Waters in view of Helbig and further in view of Fuller (4281743) and Porter (5628158).

4) Whether claim 25 is unpatentable under 35 U.S.C. 103(a) over Waters in view of Helbig and further in view of Daw et al. (4832153).

## VII. ARGUMENT

Appellant shows herein that the Examiner has not shown all limitations of the pending claims, in part due to continued misreading of the principle cited reference (Waters) and failure to give sufficient consideration to Appellant's repeated indications of these problems with the record. Specifically, the Examiner has failed to show at least four limitations of the pending claims in the combination of Waters and Helbig: Appellant's cover assembly comprises a removable closure member which detaches and can be removed from the frame when Appellant's cover assembly is opened; Appellant's claimed frame is placed on a structure surrounding an existing attic access; Appellant's closure member includes a depending central portion engaging the internal frame opening; and Appellant's cover comprises first and second continuous seals when the cover member is closed.

Further, even if the Examiner had provided that all of these missing elements were shown, there is no motivation to combine the cited references and combining the cited references would result in a nonfunctional device and require the modification of the device of Waters in a fashion in contravention to its teaching. For all of these reasons, Appellant therefore first contends the Examiner has failed to present a prima facie case of obviousness in the existing file history.

Appellant still further respectfully contends that even if the Examiner was able to present a prima facie case of obviousness, Appellant has provided sufficient evidence of secondary considerations to illustrate the superiority of Appellant's insulating and sealing device (which prevents conductive and convective heat transfer) over simply insulating devices (which prevent only conductive heat transfer) and has successfully rebutted any such prima facie case. Specifically, Appellant has shown at least commercial success, created an "industry

breakthrough” causing unexpected and significant results as validated through multiple independent third party tests, disproved expressions of skepticism and disbelief, and received recognition by industry experts and purchasing organizations. These indicators of commercial success are all clearly due to the advantages of Appellant’s claimed structure over other devices made and marketed by large corporations or individuals, and evidenced by experts in the field.

**A. Rejection under 35 U.S.C. 103(a) over Waters in view of Helbig**

1. The Examiner has not made a prima facie case of obviousness with regard to independent claim 14.

In asserting the combination of Waters and Helbig, the Examiner has failed to make a prima facie case of obviousness, as that combination does not show all elements of Appellant’s claim 14. Specifically, the Examiner has failed to show at least four limitations of the pending claims: Appellant’s structure comprises a removable closure member; the frame of Appellant’s structure is placed on a structure surrounding an existing attic access; Appellant’s closure member includes a depending central portion engaging the internal frame opening; and Appellant’s cover comprises first and second continuous seals when the cover member is closed.

- a. **The combination of Waters and Helbig does not show Appellant’s cover assembly comprising a removable closure member detachable from the frame.**

The Examiner has not made a prima facie case of obviousness because the combination of Waters and Helbig does not show Appellant’s removable closure member of claim 14. Appellant claims a cover assembly comprising a continuous frame and a removable closure member, further comprising a lower depending portion and an upper flanged portion, that is completely detachable from the frame. Throughout prosecution of this application, Appellant has respectfully demonstrated that the Examiner misreads the Waters reference as providing a cover comprising a continuous frame and the claimed two-portion removable closure member,

when in fact it clearly and unequivocally only shows a cover with an attached one-portion flat surfaced closure member.

Appellant respectfully contends that the Examiner makes two significant errors in reading Waters' embodiments of the entire cap 10. Waters clearly and repeatedly defines a "cap" or "block" as consisting of a "frame" or "walls" onto which a "cover" or "sheet" is permanently secured or hingedly attached thereto. Prior to assembly, the cover (or sheet) is completely separable from the frame (or walls) and can only be joined by either being a) hingedly attached or b) secured to form a one piece cap. The Examiner's first error is his continued erroneous interchange of Waters' "cover" or "sheet" 28 (referred to herein as Waters' "cover") with Waters' "cap" or "block" 10 (referred to herein as Waters' "cap") of which the cover 28 is an upper component. Because of this, the Examiner inappropriately applies the description of Waters' cap to Waters' cover in order to attempt to show Appellant's removable closure member in Waters' cover. Second, the Examiner reads Waters' other cap embodiments to explicitly disclose a separable or removable cover, which they do not. As a result of these two errors, most recently, the Examiner stated that Waters shows an insulating assembly in combination with an existing attic access comprising solely of a cover placed on the surrounding structure of the existing attic access. Office Action, p. 2.

The problem first has a basis in the obvious misunderstanding of terminology; that is, the Examiner equates the "cap" of Waters with Appellant's removable closure member portion of the claimed cover assembly, to which it does not conform. See, e.g., Office Action, p. 8 (discussing caps but erroneously referring only to cover 28); Office Action dated July 7, 2006, at 3; Response at 9; Office Action dated December 14, 2006 at 3. Rather, Waters' cap unambiguously comprises Waters' cover and frame, from which Waters' cover is nonremovable.

Appellant's claimed cover assembly (comparable to Waters' cap) comprises two detachable portions: 1) a frame 20 and 2) a removable closure member 26 further comprising two portions: a first, central body portion 27 depending below a second, upper portion 28. Spec., para. [0008], [0015-16], [0038-39].

In contrast, Waters only describes a "cap" wherein the closure member (Waters' "cover") is inseparable from the rest of the assembly (Waters' "cap"). Waters provides an insulation cap (10) that provides access to the attic opening by hinged movement of a cover (28) that is inseparable from the remainder of the cap (10). See FIGS. 1-3; col. 2 ll. 54-57 ("A hinge means 14 . . . supports one side or end of the cap 10 to . . . preferably, a portion (cover 28) of the cap." ) (emphasis added). It is clear from this discussion that Waters provides only a cap 10 formed with four side walls or frame components 20, 22, 24, and 26, and hinged (connected) cover 28, a structure specifically excluded from, and incompatible with, the present claims.

Waters does disclose alternative arrangements to the design related to moving the (entire) cap relative to the attic such as on hinges (col. 2 ll. 54-57) ("A hinge means 14 . . . supports one side or end of the cap 10 to the attic floor AF . . .") (emphasis added) or rails (col. 3 ll. 10-15) ("[T]here might be provided a pair of rails along the attic floor and flanges extending outwardly from the cap 10 to provide sliding movement of the cap for purposes of moving the cap to the second opened position.") (emphasis added). The Examiner, however, erroneously asserts that these alternatives of moving Waters' entire cap imply different interrelationships between the cover and frame (both components of Waters' cap). The Examiner then mistakenly concludes, absent any supportive facts, that an alternative design of a "cap" (specifically the design of Helbig) could be used in place of the cover of Waters.



In fact, Waters' references to the cap 10 provide no indications of alternative methods of connecting (or removing) the cover 28 to (or from) cap 10. The Examiner's assertion that Waters shows generally moving the "cover away from the opening" (Office Action, p. 4) is simply and obviously incorrect, as Waters only shows multiple designs for moving the entire cap from the opening. The Examiner asserts that other covers are contemplated, but refers to a section of Waters' disclosure discussing the cap. While Waters provides specific differentiation between the cap and covers numerous times in his own disclosure, the Examiner incorrectly and repeatedly uses them interchangeably in an attempt to show Appellant's claimed structure.

Once the terminology is clarified, it becomes clear that Waters does not show or suggest complete removability or separability of Waters' cover from the rest of Waters' cap, as required to show Appellant's removable closure member of claim 14. The Examiner points to Waters' many alternatives for moving or removing the entire cap and asserts that those alternatives imply obviousness to utilizing a movable or removable cover. This is simply not the case, based on Waters' internally consistent use of these terms. Waters shows only one embodiment for moving the cover (closure member) relative to the cap (frame and cover assembly): hinges. The Examiner's assertion that "the reference does not explicitly disclose that the removable cover member must be attached to [the] frame all the time" misleadingly misstates the teachings of Waters. See Office Action, p. 8. Waters only shows or indicates attached or permanently secured covers and does not disclose or imply any removal or separation of the cover from the frame: that is, Water does not show detachability of components internal to the cap, explicitly or otherwise once the device is assembled for use.

Instead, Waters' only disclosed relationships between the cover and frame are: 1) having the cover hinged to the frame ("A hinge means 14 such as a piano hinge or a plastic hinge

supports . . . a portion (28) of the cap to the side wall of the cap 10” [col. 2 ll. 54-57]); 2) having a separable cover “secured” to the frame in the same manner that the separable frame components secured together (“The sides 20, 22 and ends 24, 26 are secured together in a rectangular pattern. . . the sheet 28 could be secured to the frame and the frame hingedly attached to the attic floor AF” [col. 1. 66 - col. 3 l. 5]); see also claim 3; or 3) having the cap being a single molded piece (“Also the cap might be molded as an integral unit” [col. 3 ll. 21-22]) as opposed to having the cap formed of separable components that are later permanently connected.

Waters thus only shows hinged movement of the cover relative to the rest of the cap, or movement of the cap as a whole relative to the attic floor. In fact, the Examiner has admitted that Waters does not disclose a removable lid: “Waters et al. does not show the closure member not being bonded to any portion of the continuous frame.” Office Action, p. 3. Waters shows only a hinged embodiment and other embodiments of moving the entire cap. Office Action, p. 8. By the Examiner’s reading of Waters, Waters discloses “separable” components only in contrast to a cap that is built from a wholly molded unit, by showing “separable” pieces that are built independently and then permanently joined to comprise Waters’ cap. See, e.g., Waters claim 3. Waters does not disclose detachability of Waters’ cover 28 from Waters’ cap unit 10 or frame unit 22, 24, 26, 28, and as such does not show Appellant’s closure member of claim 14 where the cover is removable from the frame.

The Examiner also erroneously asserts it would have been obvious to modify Waters to generate Appellant’s removable closure member in light of Helbig’s removable closure member 24. Office Action, p. 4. However, the combination of Helbig and Waters does not show all the claimed elements. Helbig does not provide for an existing attic opening having a surrounding structure integral to the attic floor upon which a cover having two detachable components (a

frame and a removable closure member) is placed, because Helbig's "frame" element consists only of 26, which are the floor joists of the attic that exist on only two sides of the opening, and Helbig's "cover" (structural member 24 and 28) is permanently attached and thereby forms a single piece closure which rests on the wooden framing of an existing attic ladder. Helbig's single piece cover does not comprise any sort of removable closure member, openable by hinges, complete separation, or any other means.

Effectively, the device of Helbig is a one-piece "cap" like that of Waters where the cover is bonded to the frame (an alternative proposed by Waters) into a single unit that sits on a preexisting structure and insulates the attic opening. Waters and Helbig therefore show essentially the same two items: a surrounding attic structure (Waters' attic floor and Helbig's floor joists and wooden structure of the attic ladder device) and a one-piece cap (Waters' cap and Helbig's structural member) moveable relative to that attic structure. Neither reference provides for the device of the present claims which includes a closure member and frame detachable from each other together placed on the structure surrounding an attic opening.

Because the Examiner misreads Waters to show a cover with a detachable closure member, and because Helbig does not fill this gap, Appellant respectfully contends that the Examiner has not made a prima facie case of obviousness.

- b. The combination of Waters and Helbig does not show Appellant's claimed frame placed on a structure surrounding an existing attic access.**

Appellant's claim 14 also requires "an existing attic access having a surrounding structure" and a cover "placed on said surrounding structure," the cover comprising a continuous frame "supported on said surrounding structure" (emphasis added). This language further distinguishes Helbig and Waters. First, Helbig does not show a frame placed on a surrounding

structure of an attic access at all, but rather shows two floor joists (the existing attic structure) and four installed wooden frame components integral to the attic ladder device 12 (a newly added part). This wooden frame is an integral component of any existing attic ladder. Helbig's structural member 24 therefore rests on wooden frames of the ladder device 12 on four sides of the opening with joists outside of, and on, the other two sides; Helbig does not show a frame, separate from the one needed with every attic ladder device, supported on an existing surrounding attic structure with a removable closure attached to the frame but a "cap" placed directly on the existing attic access. Col. 3, ll. 42-45; FIGS. 5, 7. The joists are a pre-existing support structure of any home and do not have their lower surface supported on a surrounding and integral structure for an existing attic opening and therefore cannot form a "frame" of the present claim 14 allowing Helbig to be a "cover." There is no structure shown in Helbig upon which the lower surface of the joists are supported as the floor joists are precisely that support structure. See, e.g., FIG. 7. Helbig therefore does not show Appellant's frame and removable closure member placed on a surrounding structure of an existing attic access.

Waters cannot be used to rectify this problem of Helbig, as Waters also only shows a cap without a removable closure resting on an attic floor as discussed above.

Therefore, the combination of Waters and Helbig does not show the cover comprising the frame and removable closure member placed on a surrounding structure of an existing attic access.

- c. The combination of Waters and Helbig does not show Appellant's claimed cover including a removable closure member with a depending central portion.**

Claim 14 provides a combination of an existing attic access and a cover, the cover comprising two separable parts: a continuous frame defining a frame opening and adapted to surround the existing attic access opening, and a removable closure member having an upper portion and depending central portion which interfaces with the continuous frame to form two generally orthogonal seals. The combination of Waters and Helbig does not show Appellant's closure member, which includes a depending central portion engaging the internal frame opening.

Waters does not show Appellant's depending central portion or sealing capacity of the closure member. In fact, the Examiner has admitted that Waters "does not show the closure member being complementary to and snugly seats within the frame" and that "Waters et al. does not show . . . the closure member including a central portion, the depending central portion being sized and shaped to fit within the frame opening defined by the frame." See Office Action dated September 20, 2005, at p. 3; Office Action dated Sept. 11, 2007, at p. 3.

Helbig does not fill this gap of Waters. Appellant respectfully traverses the Examiner's statement that Helbig shows a depending central portion in "the flat portion and the sides thereof" of Helbig's element 24. However, element 24 is not "sized and shaped to fit within the frame opening and frictionally and snugly engage the frame 26," as required to show Appellant's claimed depending central portion, because Helbig's element 26 does not show such a frame for a depending central portion to engage on four sides. As explained previously, element 26 is preexisting floor joists that are only on two sides of the attic access opening: element 26 does not show Appellant's claimed continuous frame having spaced side walls and spaced end walls.

Helbig's element 24 therefore does not engage element 26 as a frame. Further, Helbig's element 24 does not "fit within the frame opening" as required to show Appellant's claimed depending central portion; again, element 26 does not create the necessary frame opening. Helbig's element 24 rests on all four sides on the preexisting structure of the attic ladder, not a frame component of a cover assembly as required by Appellant's claim 14.

Because Helbig's element 24 does not meet the limitations of Appellant's claimed depending central portion, Helbig cannot fill this gap of Waters. The combination of Helbig and Waters fails to show Appellant's claimed depending central portion and, therefore, the Examiner has failed to make a prima facie case of obviousness.

- d. The combination of Waters and Helbig does not show Appellant's claimed cover assembly comprising first and second seals, generally orthogonal to each other, between a removable closure member and a frame.**

Claim 14 provides a cover assembly comprising an existing attic access and a cover, the cover comprising two separable parts: a continuous frame defining a frame opening and adapted to surround the existing attic access opening, and a removable closure member having an upper portion and depending central portion that interface with the continuous frame to form two generally orthogonal seals. A first seal is inside the opening of the continuous frame; the second seal is outside the opening on the upper surface of the frame. When the two seals are broken, the frame and removable closure member detach, which allows removal of the removable closure member.

As is known in the art, attic entrances cause two distinct and vastly different heat transfer problems that result in energy loss. The first heat transfer problem occurs because there is virtually no insulation over the attic entrance. The absence of sufficient insulation in the attic

opening causes conductive heat transfer. That can only be remedied by the application of insulation, by devices such as Waters and Appellant's.

The second heat transfer problem is air leakage or air infiltration. The air leaks cause convective heat transfer. This heat transfer problem can only be remedied by creating an air seal where the air leakage exists, as performed by Appellant's device. A "seal," Appellant contends, is generally understood by those of ordinary skill in the art as a tight closure which would inhibit the passage of air. Because Appellant's seal prevents the passage of conditioned air through air leaks, it prevents convective heat transfer. Appellant accomplishes this "tight and perfect closure" by the snug, frictional, interfitting relationship between the depending central portion and the frame, and the upper flanged portion with the frame. Spec, para. [0039], [0044], [0047]. More specifically, Appellant's claimed cover creates the air seal against convective heat transfer with the closure member that flanges and frictionally and snugly engage the frame's inner and upper surfaces to create an L-shaped seal, or first and second seals generally orthogonal to each other. Spec., para. [0039].

The Examiner further supports Appellant's position as he has admitted that Waters "does not show the closure member being complementary to and snugly seats within the frame to create a first continuous seal." Office Action dated September 20, 2005, at p. 3. This is because, as shown above, Waters does not show Appellant's depending portion which could create a continuous seal with the frame opening. In fact, more generally, Waters does not show the two orthogonal seals of Appellant's claim 14. Waters does not show any snug, frictional, interfitting, tight, or perfect closure as necessary to generate a "seal." Waters' insulating value comes from the "insulative material" of the cap itself, independent of and without any disclosure of any seal between the cap or cover and the frame or the cap and the floor. See col. 2, ll. 38-42. This

accomplishes only conductive heat transfer insulation. Waters, by its specific disclosure and design, is limited to insulation and conductive heat transfer and does not disclose any seal to prevent convective heat transfer.

Further, Waters' disclosure of hinges teaches away from a seal. The cover of Waters is designed to operate relative to the rest of the cap by hinges. Col. 3, ll. 2-4. Such a design prevents an internal seal from being broken as rotational movement of the cover would not allow the first seal to break. Instead, the face of the recessed portion opposing the hinges would be driven into the wall portion of the frame with which it seals, and the lid would not open at all.

Still further, due to the space necessarily allocated to hinges that introduces a gap between the cap and the attic floor or the cover and the frame, Waters teaches away from creating a seal between the cover and frame or the cap and the floor and supports the limited intention and design of serving as an "insulative" device. That is, the hinge itself must be positioned within dedicated space between the connected components; the rest of this space along the hinge line between the connected components is a gap through which air will flow. Waters specifically mentions the use of piano hinges, which require a distance between the two hinged components. See col. 2, l. 54. Thus, Waters does not show, and in fact discourages, Appellant's first and second seals. Such a hinge prevents the formation of the seal that the Examiner (incorrectly) asserts that Helbig shows. Because Waters does not show Appellant's depending closure portion and seal between that portion and the frame, nor in fact any seal between the cover and rest of the cap, Waters does not show Appellant's first and second seals.

Helbig does not fill these gaps of Waters, contrary to the Examiner's assertions. See Office Action p. 4 (stating that Helbig shows a first and second continuous seal). Helbig does not create any first and second seals with a continuous frame, but rather only interfaces with two



sides at floor joists 26. As seen in Helbig's FIGS. 5 and 7, any sort of seal is only on two sides at joists 26: it therefore is not continuous as Appellant's claim 14 requires. Further, Helbig does not provide for a frame with which a closure member seals. Rather, as discussed previously, Helbig's "frame" element 26 is clearly labeled as the floor joists of the attic and attic ladder component 12. The same floor joists are a support component in all attics. This is therefore obviously the structure of an existing attic opening and therefore cannot be the frame of claim 14, as those are separate components; the attic opening is a part of the building's ceiling, while the frame of claim 14 is a non-integral added part. Because Helbig does not show Appellant's frame, Helbig therefore cannot show Appellant's first and second seals with that frame.

Appellant's first and second seals and their prevention of convective heat transfer is distinct patentably from the conductive heat transfer prevented by insulative devices such as Waters, as indicated by many exhibits to the Rule 132 Declarations previously submitted and attached hereto at Section IX. Appellant's superior prevention of convective heat transfer caused by Appellant's claimed first and second seals is indicated by Appellant's unexpected and consistent blower door and smoke stick test results by a number of independent third party experts conducting multiple tests with consistent results. These tests only measure reductions in air leakage and resultant convective heat transfer, not the effect of insulation on conductive heat transfer. Appellant's test results were four times better than was believed to be previously attainable, and showed surprising reductions in the amount of air that leaks through an attic hatch, measured in CFM (cubic feet per minute) when the atmospheric pressure is 50 Pa (also called "CFM50"). For example, the expert in Exhibit O estimated that air sealing an attic with any existing air sealing measures will reduce the air leakage rate of the home by 100 CFM, and specifically expressed doubt that Appellant's device would be cost-effective based on that

minimal reduction. However, as evidenced by Exhibits P and H, the actual average reduction in air leakage rate for at least six independent experts in multiple tests reached at least 500 CFM and as much as 1400 CFM. Aleshire, in Exhibit EE, elaborates on the power of this data:

“We have consistently recorded 200-400 CMF50 reductions for the hatches and 600-900 CFM50 reductions for the pull down ladders . . . To be sure, I did not believe that these reductions were attainable. The most respected scientists at Oak Ridge Laboratories as well as revered experts in the field consistently posit that no more than a 50 CFM50 reduction for hatches and a 100-200 CFM50 reduction for pull down ladders are achievable with any kit or constructed measure. I have had a number of occasions where I had to demonstrate the effectiveness of your kits in person to other experts and clients who did not believe that I could substantiate what they deemed were wild claims of effectiveness in this area.”

These blower door results indicate Appellant’s creation of an air seal not present in other devices, and, in fact, not expected by experts to be possible to obtain in any commercially produced or constructed devices. This attribute is embodied in Appellant’s claimed first and second seals, which Waters does not show, as Waters does not provide two seals and teaches away from using two seals by using hinges.

Because the combination of Waters and Helbig does not show Appellant’s first and second continuous seals, the Examiner has not made a prima facie case of obviousness for claim 14.

**e. The Examiner has not shown a motivation to combine Waters and Helbig, and any such combination would be nonfunctional.**

Even if the combination of Waters and Helbig showed all elements of claim 14 (which it does not), the Examiner has not shown any motivation to combine those references as required under KSR. See KSR Int’l v. Teleflex Inc., 127 S. Ct. 1727 (2007); Ex Parte Erkey et al., Appeal 20071375, Decided May 11, 2007 (“We determine that the Examiner has not provided a

sufficient reason or explicit analysis of why the disclosures of the references should be combined.”); Ex Parte Crawford et al., Appeal 20062429, Decided May 30, 2007 (“We find no suggestion to combine the teachings and suggestions of [the references], as advanced by the Examiner, except from using Appellant[‘s] invention as a template through a hindsight reconstruction of Appellant[‘s] claims.”).<sup>1</sup> The Examiner states that it would be obvious to modify Waters in view of Helbig, but has not stated any motivation for doing so. Therefore, the Examiner fails to make a prima facie case of obviousness.

Secondly, there can be no motivation to combine Waters and Helbig because that combination is structurally nonfunctional in numerous respects. First, given that Waters accomplishes movement of and access through the cap 10 by moving the entire unit or movement of the cover only by hinges, there is no motivation to make Waters’ cover also removable. If the entire cap 10 is movable on hinges or, alternatively, the cover is hinged, there is no reason to also have the cover movable or removable; only one point of movement is necessary. In fact, having both the cap and cover movable would make the hinging unnecessarily and meritlessly duplicative, and would make the cap ungainly, unstable, and even dangerous for one trying to get through from a ladder below. It would also generate another point of airflow and further add to Waters’ air sealing deficiencies. Waters thus teaches away from Appellant’s removable cover or closure member in the event that the cap, as a whole, is movable. Therefore, even if Helbig did show Appellant’s removable cover, the combination of Waters and Helbig would not result in Appellant’s device of claim 14.

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<sup>1</sup> Appellant repeatedly cites herein various opinions by the Board of Patent Appeals and Interferences. Appellant understands that these opinions are nonbinding, and cites them simply to illustrate previously accepted patent examining theory and practices.

In addition, if Helbig's cover were used to replace Waters' hinged cover in the only manner disclosed in Waters for movably attaching the cover to the frame (hinged), the cover would be unable to open as the shape of Helbig, in a hinged connection, would not open due to the component that extends down into the rough cut of the opening below the attic floor level to sit on the attic ladder component 12. The surrounding joists 26, as seen in FIG. 7, prevent lateral movement necessary for following the arc required for hinged movement in a similar fashion to the way the frame of Waters would inhibit such movement if Helbig replaced Waters' cover.

The combination of Helbig and Waters is also structurally flawed because the devices are different sizes relative to the hole in the attic floor they are designed to insulate, and are installed relative to that hole in different ways. By virtue of its design, the device of Helbig is necessarily smaller than the hole in the attic floor, as it must rest on the attic ladder component 12 that protrude into the hole between and down within the joists. Within that space, Helbig connects only to ladder components 12. See FIG. 7. In contrast, Waters is disclosed to be larger than the hole, having "such outer dimensions as to completely cover the ceiling opening." Col. 2, ll. 42-46. The cap of Waters simply sits on the attic floor surrounding the hole with inside dimensions greater than the outside dimensions of Helbig. The two devices therefore cannot be combined, as their sizes relative to the attic floor hole dictated by their means of installation are inapposite.

In conclusion, even if the combination of Waters and Helbig showed all elements of Appellant's claim 14 (which it does not), the Examiner has not provided a motivation to combine those references, and the combination of those references is structurally inoperable. Therefore, under KSR, the Examiner has failed to make a prima facie case of obviousness for Appellant's claim 14.

2. Appellant's secondary considerations rebut any prima facie case of obviousness for claim 14, especially when viewed under KSR.

Standing by Appellant's assertion that the Examiner has not established a prima facie case of obviousness, Appellant additionally respectfully asserts that Appellant's secondary considerations would still rebut any prima facie case by the Examiner. The Examiner has repeatedly indicated (e.g., in the response to the pre-appeal conference and in the Office Action dated September 11, 2007, p. 9) that Appellant's secondary considerations were non-persuasive. The record fully answers the Examiner's concerns about the exhibits and show secondary considerations clearly commensurate with the scope of the claims and that Appellant's device provides unexpected sealing qualities because of the structure of claim 14. The Examiner also failed to note Appellant's secondary consideration of commercial success as shown in replacement of market share and a premium price.

Appellant has respectfully reminded the Examiner of his recently affirmed duty to consider all secondary considerations. The Graham framework for obviousness has recently been reaffirmed, such that all secondary considerations should be taken into account in the newly "expansive and flexible approach" to obviousness rejections. KSR Int'l Co. v. Teleflex, Inc., 127 S.Ct. 1727, 1729, 1741 (2007). Appellant respectfully contends that the Examiner's numerous other exhibit-specific concerns do not render those exhibits, or the exhibits as a whole, non-persuasive under the expansive and flexible analysis required by KSR. As such, Appellant's secondary considerations effectively rebut any prima facie case which could be made by the Examiner.

- a. **The Rule 132 Declarations and exhibits thereto clearly identify the product and advantages therein as The Energy Guardian® which according to the Declarations explicitly corresponds to claim 14.**

Appellant first respectfully asserts that the submitted secondary evidence (in the Declaration, Supplement and Additional Supplement) regarding the device referred to as The

Energy Guardian® clearly and explicitly embodies claim 14. See (Addt'l Supp. Rule 132 Dec., dated July 16, 2007); (Supp. Rule 132 Dec., dated Feb. 1, 2006); (Rule 132 Dec., dated July 27, 2005) (providing "I have reviewed claim 14 of the above referenced application and believe that The Energy Guardian[] embodies the elements of that claim.")). That is, each exhibit's reference to The Energy Guardian® clearly and explicitly refers to claim 14, including in the statements from Tom Donofrio and George Temme and exhibits Q, D, E, EE, M, and R, S, V, F, FF, U, W, and DD. The record also contains photographs of The Energy Guardian® which show it to be a clear embodiment of claim 14. See Ex. V. Thus, the secondary considerations in those exhibits clearly correspond to claim 14 such that they rebut any prima facie case by the Examiner.

Regarding the Examiner's specific objections that the exhibits by Tom Donofrio and George Temme are unclear as to what structures they refer to, Appellant respectfully disagrees. Both references clearly and explicitly refer to The Energy Guardian® which, as explained in the Supplemental Declaration to which they are exhibits, maps to claim 14. Further, in Exhibit J, Tom Donofrio specifically refers to Appellant's claimed "two part design" in rejecting the usefulness of products that contain one solid unit or two units attached; by doing so, he refers to the claimed continuous frame and removable closure member of claim 14. Donofrio also specifically refers to the "far superior" quality of the seals provided by the claimed depending portion. Thus, his endorsing statements clearly reference specific elements of claim 14 and are commensurate with and embody the scope of the claims of the Appellant. Further, the only kits used by Mr. Donofrio and Mr. Temme when they wrote their letters were for the devices of claim 14 suitable for pull down ladders or hatches. The Examiner failed to note the clear indication in the record that Tom Donofrio installed The Energy Guardian® over the pull down ladder in his home.

The Examiner also claimed exhibits Q, D, E, EE, M, R, S, V, F, FF, U, W, and DD are unclear in their correspondence with the scope of the claim. (Office Action, pp. 10-11). Appellant notes that the remaining references were not subject to the Examiner's concerns, and support the points Appellant makes herein and throughout the record. Appellant again indicates the statements in the Declarations accompanying these exhibits, providing that all mentions of The Energy Guardian® are commensurate with claim 14. The accompanying Declaration also explains each reference and, where necessary, provides that the exhibit is addressing The Energy Guardian® and therefore claim 14. Further, many of these exhibits refer to claimed structural components: the "seal established as the extension of the lid fits into the frame" (Ex. D); a "two-piece unit" with a "tight air seal" and "a lid that fits into a frame to easily re-establish an air seal when used" (Ex. E); "great" "air-sealing qualities" and "the lid of your kits fits right into the frame without any hooks or other devices to secure the air seal" (Ex. Q); "heavy duty air seal" (Ex. R); actual photographs showing the claimed structure (Ex. V); and "The results are a direct result of the unique design of your kits. The lid with its lip that fits into the frame is the key to the solution." (Ex. EE). The record therefore leaves no room for doubt that exhibits Q, D, E, EE, M, R, S, V, F, FF, U, W, and DD each are commensurate with the scope of claim 14.

The Examiner also complained that Appellant's website does not "clarify the issues." Assuming the Examiner to be referring to the numerous insulating and sealing devices on Appellant's website, Appellant respectfully points out that the Declarations and exhibits linking The Energy Guardian® attic pull down ladder and hatch unit to claim 14 amply "clarifies" Appellant's website.

That Appellant's commercial success of The Energy Guardian® is clearly a result of the structure of claim 14, as opposed to other motivators for purchasing or contributors to preventing

heat transfer, is also supported by the fact that The Energy Guardian® is a simple device produced by a small company. Where “the invention in issue is a relatively simple one . . . it seems evident that the claimed invention was the reason for the commercial success . . . in other words, that there was a nexus between the claimed invention and the commercial success.” Ex Parte James W. Shiek, Sr., Appeal No. 1999-0266, 1999 WL 33205719 (PTO Bd. Pat. App. & Int’f 1999). Appellant’s apparatus is relatively simple: components in two pieces that seal together to insulate and seal an attic opening. It is a tribute to Appellant’s ingenuity that Appellant improved upon the simple theme of insulating devices offered by Waters and Helbig, with a device that has received wide market acceptance and endorsement by experts in the field and government agencies tasked with energy conservation and monetary savings. In addition, Exhibits U, W, and DD illustrate that the commercial success of Appellant’s claimed apparatus is not due to any heavily financed corporate marketing or promotional activity, but significantly from “word of mouth” from enthusiastic actual users about the claimed device’s advantages. In fact, some of claimant’s competitors are large and even multi-national corporations with extensive corporate marketing and active promotional activity. In this competitive environment, it is apparent that the combined insulating sealing effect shared through the word of mouth referrals and limited resources of Appellant’s small company resulted in the product of claim 14 gaining market share over such corporations. Thus, due to the simplicity of Appellant’s claimed apparatus and the small size of Appellant’s company, Appellant’s commercial success, generally and as narrated in the record, is clearly the direct result of Appellant’s claimed apparatus.

Thus, the record provides clear and ample support for Appellant’s secondary considerations completely rebutting any prima facie case, as the product and advantages described in the exhibits clearly are commensurate with claim 14.



**b. Appellant has shown that the results of the product of claim 14 are unexpected and significant.**

Secondly, Appellant respectfully traverses the Examiner's statement that Appellant has not provided evidence that establishes the results are unexpected and significant, as the Examiner contends "it is expected that once a person limits the area of escape by air between structures by providing more sealing surfaces, less air would escape a structure resulting in a more insulating structure. The combination of the references is thus obvious as set forth above." Office Action, p. 9. Appellant respectfully asserts that the Examiner is incorrect: as explained, an air seal does not create a more insulating structure, but rather prevents air leakage and the resultant convective heat transfer. Further, Appellant respectfully contends that the submitted evidence shows that the insulating and sealing capacity of the claimed structure is far from "expected": the skepticism of experts including scientists at the U.S. Department of Energy Oak Ridge Laboratories specializing in this field evidenced in the record, combined with exhibits establishing the scientists were incorrect, establishes that the results are unexpected.

As noted in prior sections, Appellant's claimed first and second seals contribute to Appellant's superior prevention of convective heat transfer, in contrast to non-sealing or insulating devices that prevent only conductive heat transfer. The device of claim 14, with these seals, performed unexpectedly well in reducing the amount of air that leaks through the attic hatch, measured at CFM50. In Exhibit O, a scientist in the field of air leakage predicted a reduction of air leakage through an attic pulldown stair by only 100 CFM, and was doubtful that Appellant's device would be cost-effective based on that minimal reduction. However, as evidenced by Exhibits P and H, the actual average reduction in air leakage rate as evidenced by six exemplary customers reached at least 500 CFM and as much as 1400 CFM. The surprising nature of this data is further evidenced by Exhibit EE.

“Never in my 25 years of work in the weatherization business have I achieved a zero reading for the smoke stick around an attic entrance, but we get it every time with your kits. We have consistently recorded 200-400 CFM50 reductions for the hatches and 600-900 CFM50 reductions for the pull down ladders . Those results are 3-5 times better than any other measure recorded for alternative measures for these attic entrances.. . To be sure, I did not believe that these reductions were attainable. The most respected scientists at Oak Ridge Laboratories as well as revered experts in the field consistently posit that no more than a 50 CFM50 reduction for hatches and a 100-200 CFM50 reduction for pull down ladders are achievable with any kit or constructed measure. I have had a number of occasions where I had to demonstrate the effectiveness of your kits in person to other experts and clients who did not believe that I could substantiate what they deemed were wild claims of effectiveness in this area.”

These readings were all derived from the same organization that trains a number of different agencies in the Federal Weatherization Assistance Program throughout much of the United States, using specifically calibrated blower door testing to government standards and smoke stick devices. As further evidence of the unexpected nature of this reduction, one customer explains that she was “amazed” by the results. See Ex. S. The experts’ skepticism regarding Appellant’s cost-effectiveness was also put to rest by testimonials of cost-effectiveness, further illustrating the unexpected nature of Appellant’s success. See, e.g., Ex. C.

Furthermore, the exhibits establish the significance of the results as evidenced by receipt of the Environmental Excellence Award from an accredited university (Exhibit A), and the degree to which the public has taken notice of Appellant’s results (Exhibits T, U, and W). In addition, infrared camera tests of the kits were performed by a third party environmental specialist whose agency is funded by the Federal Community and Economic Development, which further showed the results of the kits. See Ex. V. Most importantly, numerous exhibits establish the dramatic improvement in home heating and cooling costs due to installation of Appellant’s claimed apparatus. See, e.g., Ex. H (showing dramatic blower door results); Ex. P

(same); Ex. X (showing the Appellant's own decrease in utility bills since installing the claimed apparatus); Ex. Y (explaining that the claimed apparatus is so effective that additional insulation is needed to equally distribute the newly recaptured conditioned air); Ex. Z (showing a consumer's decrease in utility bills since installing the claimed apparatus); Ex. AA (citing noticeable improvement and "a HUGE difference"); Ex. BB (same); Ex. CC (exclaiming that Appellant's device "works!"); Ex. DD (citing "a NOTICEABLE difference").

In light of these numerous, enthusiastic, and experience-based testimonials, Appellant respectfully asserts that Appellant's results are, in fact, significant. The results of Appellant's claimed structure, including the first and second seals, are unexpected and significant such that these secondary considerations rebut any prima facie case by the Examiner.

**c. Appellant has additionally shown persuasive secondary considerations of commercial success as indicated by replacement of inferior products and increased market share.**

Without accepting that the Examiner has made a prima facie case, or that Appellant's other showings are not sufficiently demonstrative of non-obviousness, Appellant has alternatively contended that Appellant has shown commercial success in the form of replacement of earlier products and increased market share. See Ex Parte Antero et al., 2003 WL 22282241, \*8-11 (PTO Bd. Pat. App. & Int'f 2003) (recognizing replacement as a valid indicator of commercial success); Ex Parte Fedor et al., 2006 WL 2786858 (PTO Bd. Pat. App & Int'f 2006) (accepting evidence of increased market share as an indicia of commercial success). Appellant respectfully traverses the Examiner's statement that Appellant's market share is not clearly due to Appellant's claimed technical features. Office Action, p. 11.

This replacement, due to Appellant's superior combined insulating and air sealing, is narrated in several exhibits that "provide[] persuasive evidence of . . . real personal knowledge of

the [product] for the relevant time frame for claimed commercial success.” See Ex Parte DBC and Xango, 2007 WL 2433106, \*13 (PTO Bd. Pat. App. & Int’f 2007). In Exhibit Q, The Weatherization Director for a NY State Weatherization Assistance Program regional organization found that other products, while “an improvement over the existing conditions, . . . didn’t come close to solving the problem like your [Energy Guardian®] Kits. We’ve looked at other products over the years, but none of them met our standards . . . . Your kits solve this problem like no other solution that my organization has built, bought or otherwise seen available in the market.” In Exhibit R, a Weatherization Manager of a NJ state Weatherization Assistance Program Agency responsible for decreasing energy costs for low income families stated that The Energy Guardian® was superior over their own handmade products for their ease of installation and quality of seal. “The heavy duty air seal is a big step up from the old weather stripping method we used to use. . . .weather stripping can’t match the one created by the lid sliding into the frame of your kits.... This makes them very cost effective since we know that the improvement will last and continue to save money year after year.” In Exhibit S, a homeowner explained that she was “so glad [she] went with [Appellant’s unit] instead of the [attic] Battic door [she] was considering.” Temme, in Exhibit K, states that The Energy Guardian® “is clearly the superior product available in the market today.” Exhibit F relates a statement by the earlier noted Weatherization Director of the NY State Weatherization Assistance Program that “[t]he flimsy solutions used in the industry for years just don’t cut it.” Exhibit G advertises improvements of The Energy Guardian® over other attic cover designs on the market. Exhibit EE states that “when we measured the results for *The Energy Guardian Kits* . . . they were far greater than any alternative either commercially available or individually constructed.”

Appellant also respectfully asserts commercial success as illustrated by prospective market share. This statement is supported by Exhibit T, which provides a “very good” rating for a consumer report aired on a CBS affiliate evening news explaining the claimed apparatus and thus illustrates a good deal of consumer interest. The kits were also featured on the evening news of an NBC affiliate and nationally on The FOX News Channel. The reporting by these various news agencies speaks to the innovation of the kits and the dramatic results achieved by this solution for attic entrances. Again, these stations apparently ignored readily known products and measures as they obviously found Appellant’s product to be more newsworthy. They relied on independent research: Appellant’s small size and dependence to a great extent on word-of-mouth advertising means that the news agencies would not otherwise have any knowledge of Appellant’s device. These testimonials illustrate marketplace replacement and increased actual and prospective market share of previous attic entrance sealing apparatuses by The Energy Guardian®, which embodies Appellant’s claims, and so indicate its commercial success.

Appellant’s current and prospective increases in market share are made even more persuasive by the fact that Appellant’s device carries a premium price; Appellant’s claimed device is so superior to prior devices that customers willingly pay a premium for Appellant’s claimed device. See Ex. G (explaining that The Energy Guardian® “costs more than the Draft Cap, but is stronger and provides a higher insulating value.”); Ex. S (providing a testimonial from a pleased consumer who added, “You pay for what you get as the old saying goes!”); Ex. O (providing skepticism about Appellant’s cost-effectiveness in light of Appellant’s premium pricing). The testimonial in Exhibit V was supplied by a contractor who is specifically trained and certified in home energy saving measures, and who installs the claimed product for a number of utility companies. The utility companies sponsor programs to make low income families

homes more energy efficient. He states that he installs the claimed product even when the utility company does not pay for the full amount of the product because he believes it is so much better for the homeowner.

The adoption of Appellant's device by government programs also illustrates commercial success. The government is a large-scale contractor with a virtually unlimited marketplace, with steep competition for their contracts. Appellant's device has been used by government agencies, including but not limited to the Weatherization Assistance Program, a U.S. Department of Energy program designed to reduce energy bills; and agencies which work under this program such as Atlantic Human Resources, Inc.'s Weatherization Program, which provides weatherization for low-income housing; and Tompkins Community Action, which uses federal funds to weatherize low-income housing. See Exs. L, R, Q; see also Ex. V (relating a private contractor's successful installation in federally funded low-income program). Further, at least one of these programs has expanded its use since the declaration was filed as more fully presented on Appellant's website. New Jersey Natural Gas now recommends the device to all of its approximate 500,000 residential utility customers, in addition to providing the device for its low income customers. The fact that so many government and utility funded programs and organizations recommend and install Appellant's claimed device is a clear indicator of Appellant's commercial success.

As explained above, the advantages of Appellant's claimed device responsible for Appellant's increased market share are due to Appellant's claimed air sealing structure, rather than any other commercial factors. The small size of Appellant's company, in juxtaposition with the success of Appellant's device, supports this. Appellant's increased market share is therefore a persuasive secondary consideration that rebuts any prima facie case by the Examiner.

**d. The exhibits, under *KSR*, moot the Examiner's other concerns about those exhibits in their provision of secondary considerations.**

The Examiner also raised a host of additional questions about the exhibits that Appellant respectfully contends are inconsequential under the "expansive and flexible" approach to obviousness mandated by KSR: how many sets of the kits have been used or sold, the role of the testifiers within their companies, why those individuals purchased the product, and what components of the kit they used. Office Action, pp. 9-10. Appellant respectfully contends that these questions are inconsequential under the KSR standard for obviousness, which encourages expansiveness and flexibility and discourages "rigid preventative rules." 127 S.Ct. at 1729, 1741, 1742-73. In light of the overwhelming statements by those in the industry that the product embodying claim 14 is far superior to any other product in its claimed sealing structure, is unexpectedly effective at sealing, is worth a premium price, and is displacing inferior products in the marketplace, under the expansive and flexible approach mandated by KSR, Appellant's secondary considerations rebut any prima facie case of obviousness notwithstanding these inconsequential concerns by the Examiner.

In addition, the Donofrio exhibit refers to "the unit" installed in Mr. Donofrio's own home as well as his confidence that he can sell multiple units to customers of Builders Prime Window and Supply. This clarifies both how many kits Mr. Donofrio has had personal experience with, and indicates he is in a position within the company to "confidently sell them to homeowners and contractors." Mr. Donofrio also explained he purchased the product because he "knew from [his] personal knowledge and experience that it made great sense."

As for the Temme exhibit, Appellant respectfully contends that Mr. Temme's role in the purchasing process is irrelevant, as his exhibit speaks for his employer as "the sub contractor for the New Jersey Comfort Partners low income energy conservation program." Ex. K. Mr.

Temme explains that the “factors . . . involved in his company’s purchase of the products” (Office Action, p. 10) include that The Energy Guardian® “is clearly the superior product available in the market today” (Ex. K): that is, the claimed aspects that contribute to the product’s purpose are superior. This statement also shows that Mr. Temme believes the product, and not “other reasons for better insulating results, like better installation or housing structural designs” (Office Action, p. 10), make the product superior. Mr. Temme is an employee of a company which, as Mr. Temme noted clearly, is under the auspices of the state Board of Public Utilities to “provide products and energy saving measures ... according to guidelines and procedures mandated by all seven utility companies in the state. Our products and measures must meet or exceed stringent standards and measures and our work is subject to review and inspection by third parties.” See Ex. K. Further, the website of the New Jersey Comfort Partners, for which Mr. Temme selects products as explicitly shown in Exhibit K, shows that part of the mission of New Jersey Comfort Partners is to provide “[d]irect installation of all cost-effective energy efficient measures.” See [http://www.njcleanenergy.com/files/file/BPURpt2Q07\\_Final.pdf](http://www.njcleanenergy.com/files/file/BPURpt2Q07_Final.pdf), at 19-20. Further, the program is very large, well funded, and has been very successful (as indicated by its own reporting documents), showing clear expertise in selecting which products should be endorsed and used by program participants. See id. Clearly, Mr. Temme’s comments are supported by expertise, a position of experience and authority, and high standards.

The expertise of the individuals in the exhibits makes the number of units they bought and sold inconsequential, and resolves the Examiner’s concerns about the individuals’ positions within their respective institutions. See (Request for Continued Examination, dtd. July 16, 2007, at 7-9). None of these experts would place his or her reputation on the line even based on the use



of a single product if they did not find these products innovative and far superior to other like products on the market. For example, Vic Aleshire of Exhibits E and EE has worked for over 25 years in the field of residential energy conservation, including work with scientists at Oak Ridge National Laboratory. He has also used the claimed invention in weatherization training for the Weatherization Assistance Program, a U.S. Department of Energy program designed to reduce energy bills. See Exhibit L. Mr. Aleshire opined that in his 25 years' experience, The Energy Guardian® is the first product to properly seal attic accesses. Doug Rye's testimonial, attached hereto as Exhibit M, is also an expert opinion: Rye was referred to as possibly "the best-known residential energy consultant in the nation" by the Energy Services Bulletin, produced by an agency of the U.S. Department of Energy. See Exhibit N. He has also worked for over 35 years in helping lower utility bills. See Exhibit M. In his experienced and knowledgeable opinion, Rye stated that "[t]he *Energy Guardian Kits* have set a national standard." Exhibit D's Art McKeown has nearly thirty years experience in the Home Builder's Association, during which he stated he has "never seen a more practical or effective solution than" The Energy Guardian®. Expertise is also apparent in Ex. A (providing an experienced journalist's evaluation that The Energy Guardian® meets a long-felt need) and Ex. C (stating that the President of Oliver Heating and Cooling, and the Vice President of the Delaware Chapter of the Air Conditioning Contractors of America, has not seen a product comparable to The Energy Guardian® in twenty-seven years in the home cooling industry). The blower door test results are also from renowned weatherization agencies using carefully calibrated blower door testing devices. See Exhibits P, H, EE.

Thus, Appellant asserts that the statements in the exhibits are strong testimonials from not just one of ordinary skill in the art indicating that the claimed device is not obvious, but from

highly respected and experienced experts in the field of residential energy conservation. Their status as experts makes their opinions persuasive indicators of nonobviousness. Ex Parte James W. Shiek, Sr., Appeal No. 1999-0266, 1999 WL 33205719 (PTO Bd. Pat. App. & Int’f 1999) Using their expert knowledge, these experts may have even been convinced solely by experiencing one product; this does not detract from the power of their testimonials.

In sum, the overwhelming evidence on the record, when properly viewed under KSR, shows persuasive evidence of secondary considerations that rebuts any prima facie case of obviousness. Appellant respectfully states that the Examiner’s lingering questions are inconsequential and overly rigid, such that they do not properly prevent Appellant’s secondary considerations from effectively rebutting any prima facie case.

3. The Examiner has not made a prima facie case for the dependent claims 27-29; moreover, Appellant’s secondary evidence would rebut any such prima facie case.

Appellant notes that claims 27-29 are dependent on claim 14 and claim 14 only stands rejected in light of the combination of Helbig and Waters. As explained above, Appellant respectfully asserts that this combination fails to show the device of claim 14. Further, neither reference shows that device as claimed with further limitations in claims 27, 28, and 29. Moreover, Appellant’s secondary considerations rebut any prima facie case.

**B. Rejection under 35 U.S.C. 103(a) in light of Waters further in view of Anghinetti**

Appellant notes that claim 22 is dependent on claim 14 and claim 14 only stands rejected in light of the combination of Helbig and Waters. Appellant asserts that Anghinetti in combination with Helbig and/or Waters fails to provide the necessary elements as discussed above for claim 14. Specifically, as explained for claim 14, Appellant states that Waters et al. as modified by Helbig does not in fact “show[] all the claimed limitations except for the closure member having at least one handle . . . .” Office Action, p. 5.

Anghinetti does not fill the gaps of Waters. Anghinetti shows a hinged roof access. This is also not a device for performing attic insulation and sealing but instead a locking mechanical roof entry for ingress and egress between a roof and an attic; Anghinetti is therefore arguably non-analogous art. As it also clearly utilizes a hinged construction, it suffers from all the same problems as the device of Waters and therefore cannot provide the elements already missing from the Waters and Helbig combination.

**C. Rejection under 35 U.S.C. 103(a) in light of Waters in view of Helbig and further in view of Fuller and Porter: Claims 24, 31-32**

Appellant notes that claims 24, 31, and 32 are dependent on claim 14 and claim 14 only stands rejected in light of the combination of Helbig and Waters. Appellant asserts that neither Fuller, Porter, nor the combination thereof, in combination with Helbig and/or Waters provides the necessary elements as discussed above for claim 14. Specifically, as explained for claim 14, Appellant respectfully states that Waters et al. as modified by Helbig does not in fact show “all the claimed limitations except for the closure member including at least first and second components each having opposing edges which are configured to cooperatively engage one another to create a tortuous seal path therebetween, and means for adhesively securing the opposing edges in inter-fitted relationship so as to form a unified closure member.” (Office Action, p. 6).

Neither Fuller nor Porter fills the gaps of Waters. Fuller shows an attic insulation device which, when assembled, is designed to form an insulative, non-sealing, single piece “cap” that simply rests over the attic access opening. Like the alternative embodiments of Waters and the device of Helbig, this device does not have a removable closure member which is designed to separate from the frame when access is required. Instead, the device provides a single piece cap over the attic access opening. While the pieces may not necessarily be glued together (although

in at least some embodiments they appear to be), it is quite clear from its design that the cap is designed to resist detachment of parts (disassembly) when a force is provided through the opening in the frame. It therefore shows bonded structures expressly excluded from the scope of the claim. Further, Fuller lacks Appellant's double seal and depending portion.

Porter does not show any form of attic access cover nor an attic access. It rather shows various arrangements of structural insulated panels, and is non-analogous. As such, it cannot show the missing detachable frame and lid. Even if the reference were to show such elements (which it does not) and were determined to be analogous (which it is not), there is no motivation to combine this reference with the disclosure of Waters as any such combination would still suffer most of the same fatal flaws as the Waters and Helbig combination.

**D. Rejection under 35 U.S.C. 103(a) in light of Waters in view of Helbig and further in view of Daw: Claim 25**

Appellant notes that claim 25 is dependent on claim 14 and claim 14 only stands rejected in light of the combination of Helbig and Waters. Appellant asserts that none of these secondary references in combination with any of the primary references provides the necessary elements as discussed above for claim 14. Specifically, as explained for claim 14, Appellant respectfully states that Waters et al. as modified does not show "all the claimed limitations except for the closure member being coated with a fire retardant material."

Daw does not fill the gaps of Waters. Daw, while it shows attic insulation members, shows a device which, when assembled, is designed to form a single piece "cap" that simply rests over the attic access opening. Daw only claims to be an insulating device, not a sealing device. Like the alternative embodiments of Waters, this device does not have a removable closure member which is designed to separate from the frame when access is required. Instead the device provides a single piece cap over the attic access opening. While the pieces may not

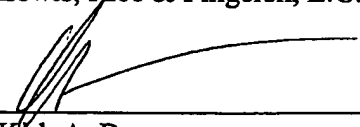
necessarily be glued together (although in at least some embodiments they appear to be), it is quite clear from its design that the cap is designed to resist detachment of parts (disassembly) when a force is provided through the opening in the frame. It therefore shows bonded structures expressly excluded from the scope of the claim. Further, Daw lacks Appellant's double seal and depending portion.

**E. Conclusion of Argument**

Appellant respectfully concludes that the currently rejected claims are not obvious. First, the Examiner has failed to make a prima facie case, as Waters' and Helbig do not provide closure members detachable from frames but only single piece or connected "caps." Second, the cited references do not provide for Appellant's first and second seals. Third, even if the Examiner did make a prima facie case (which Appellant denies), Appellant's secondary considerations rebuts that prima facie case, as the device is commensurate with claim 14, shows unexpected and significant results, and shows commercial success by replacement of inferior products and increased market share. Under KSR, the Examiner's additional concerns are overly rigid and do not prevent Appellant's secondary considerations from rebutting any prima facie case of obviousness.

Respectfully submitted,  
Lewis, Rice & Fingersh, L.C.

Dated: May 15, 2008



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Kirk A. Damman  
Registration No. 42,461  
Attorney for Appellant/Applicant

**Customer Number: 22822**  
Lewis, Rice and Fingersh, L.C.  
Attn: Box IP Dept.  
500 N. Broadway, Suite 2000  
St. Louis, MO 63102-2147  
Tel: (314) 444-7600  
Fax: (314) 444-7788

## VIII. CLAIMS APPENDIX

Below are the claims involved in the appeal.

14. An insulating cover assembly in combination with an existing attic access, the combination comprising:

an existing attic access having a surrounding structure integral to a ceiling of a building and providing access to said building's attic, said existing attic access defining an existing attic access opening therethrough and having an existing trap door for closing said existing attic access opening;

an insulating cover placed on said surrounding structure and including:

a continuous frame having spaced side walls and spaced end walls and which frame is formed of a free standing insulating material having an upper surface and a lower surface, said frame defining a frame opening therethrough, said frame opening being aligned with said existing attic access opening, said frame being of a size and configuration so as to enclose said existing attic access opening when said lower surface is supported on said surrounding structure; and

a removable closure member formed of a free standing insulating material, said removable closure member not being bonded to any portion of said continuous frame and said removable closure member including:

a depending central portion, said depending central portion being sized and shaped to fit within said frame opening defined by said frame and frictionally and snugly engage each of said side walls and said end walls of said frame inside said frame opening to create a first continuous seal with said frame when said removable closure member is positioned on said frame in a covering relationship with respect to said frame opening; and

an upper portion forming flanges, said flanges extending laterally outward relative to said depending central portion, said flanges being sized and shaped to

frictionally and snugly engage an upper surface of each of said side walls and end walls of said frame to create a second continuous seal with said frame when said removable closure member is positioned on said frame in covering relationship with respect to said opening defined by said frame;

wherein said closure member is not hinged to and detaches from said frame when said first continuous seal and said second continuous seal are broken by a force applied to said removable closure member through said frame opening, leaving said frame enclosing said existing attic access opening; and

wherein said first seal and said second seal are generally orthogonal to each other when said removable closure member is positioned on said frame in covering relationship with respect to said opening defined by said frame.

22. The combination of claim 14 including at least one handle extending from a lower surface of said removable closure member so as to be accessible within said frame opening when said removable closure member is positioned on said frame in covering relationship with respect to said frame opening.

24. The combination of claim 14 in which said removable closure member includes at least first and second components each having opposing edges which are configured to cooperatively engage one another to create a seal therebetween, and means for adhesively securing said opposing edges so as to form a unified removable closure member.

25. The combination of claim 14 wherein said removable closure member and said frame are coated with a fire retardant material.

27. The combination of claim 14 in which said insulating material of said removable closure member and said frame is an expanded polymeric material.

28. The combination of claim 14 wherein said trap door comprises a hatch.

29. The combination of claim 14 wherein said trap door is attached to a fold down attic access ladder.

31. The combination of claim 14 wherein said removable closure member comprises two pieces, the two pieces having a seal between them when positioned on said frame in covering relationship with respect to said frame opening.

32. The combination of claim 31 wherein said two pieces are adhered together.



## **IX. EVIDENCE APPENDIX**

Evidence appended hereto was submitted pursuant to 37 CFR 1.132, in Declarations dated July 16, 2007, Feb. 1, 2006, and July 27, 2005. The Examiner entered the July 16, 2007 Declaration into the record in the September 11, 2007 Office Action (p. 2); the Feb. 1, 2006 Declaration in the April 19, 2006 Office Action (p. 8); and the July 27, 2005 Declaration in the September 20, 2005 Office Action (p. 1). True copies of these Declarations and their exhibits are attached hereto.

Additional evidence appended hereto was submitted pursuant to 37 C.F.R. 1.131, in a Declaration dated June 14, 2006. The Examiner entered this Declaration into the record in the July 7, 2006 Office Action (p. 1). A true copy of this Declaration is attached hereto.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
James B. Melesky	:	
Appln. No. 10/024,478	:	Art Unit: 3637
Filed: 21 December 2001	:	Examiner: A. Phi Dieu Tran
For: INSULATION COVER FOR ATTIC CLOSURES	:	Docket No.: 82/1376US Formerly: 13811

Commissioner for Patents  
Alexandria, VA 22313

**Rule 132 Declaration**  
**(Secondary Considerations of Non-obviousness)**

Being of legal age, I, James B. Melesky, declare and state as follows:

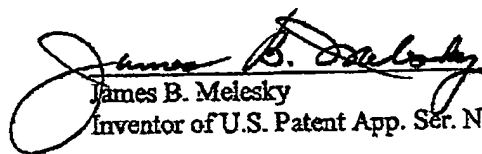
- 1) This declaration is to establish secondary considerations of non-obviousness in the above referenced application.
- 2) I am the inventor of the above referenced application and familiar with its disclosure and claims. I am also the President of ESS Energy Products, Inc (f/k/a Energy Sentry Solutions, Inc.) which manufactures and sells a device under the Trademark "The Energy Guardian." I am familiar with the design of The Energy Guardian™.
- 3) I have reviewed claim 14 of the above referenced application and believe that The Energy Guardian™ embodies the elements of that claim.
- 4) I have attached hereto a number of exhibits demonstrating the perspective of persons knowledgeable in the art, who believe the invention to be an innovative step beyond the prior art solving a long-felt need in industry. This evidenced perspective is indicative of the non-obviousness of my invention.
- 5) I have attached hereto as Exhibit A a copy of an article which appeared in the October 27, 2003 edition of the Daily Local Newspaper.
  - a) The reporter states in that article that The Energy Guardian™ is "innovative," "invented," and that there was a need for such a product.

- b) The article states that The Energy Guardian™ won the Environmental Excellence award from the Kutztown University Small Business Development Center. An award which it did win.
- 6) I have attached hereto as Exhibit B a printout from REWilliams Contractor Inc's website. REWilliams sells a large number of different products on their website with a focus on money saving products. REWilliams lists The Energy Guardian™ as one of only 14 "Innovative Items" they sell
- 7) I have attached hereto as Exhibit C a letter I received From Rocco Pace who is the President of Oliver Heating and Cooling and the Vice President of the Delaware Chapter of the Air Conditioning Contractors of America. The letter states:
- a) The Energy Guardian™ is an "innovative solution" to saving energy.
- b) That Mr. Pace has not seen a comparable product in 27 years in the HVAC industry.
- 8) I have attached hereto as Exhibit D a letter I received from Art McKeown who is the Owner and President of AEM Custom Builders, Inc. and hosts "Art the Builder" a syndicated radio show related to home improvement.
- a) Mr. McKeown states that he has been a builder for almost 30 years.
- b) Mr. McKeown has hosted a weekly talk radio show related to home building and improvement for the last 7 years.
- c) Mr. McKeown states that The Energy Guardian™ is the most practical and effective solution to attic sealing he knows of.
- d) Mr. McKeown states that the extension from the lid is of particular benefit as it insures the lid is correctly attached and sealed.
- 9) I have attached hereto as Exhibit E a letter I received from Vic Alshire President of the Comfort Company. The letter states:
- a) Mr. Alshire has 30 years of experience in residential energy conservation.
- b) Mr. Alshire has worked with scientists at Oak Ridge National Laboratory regarding energy conservation measures.
- b) Mr. Alshire uses The Energy Guardian™ as part of national training for the Weatherization Assistance Program

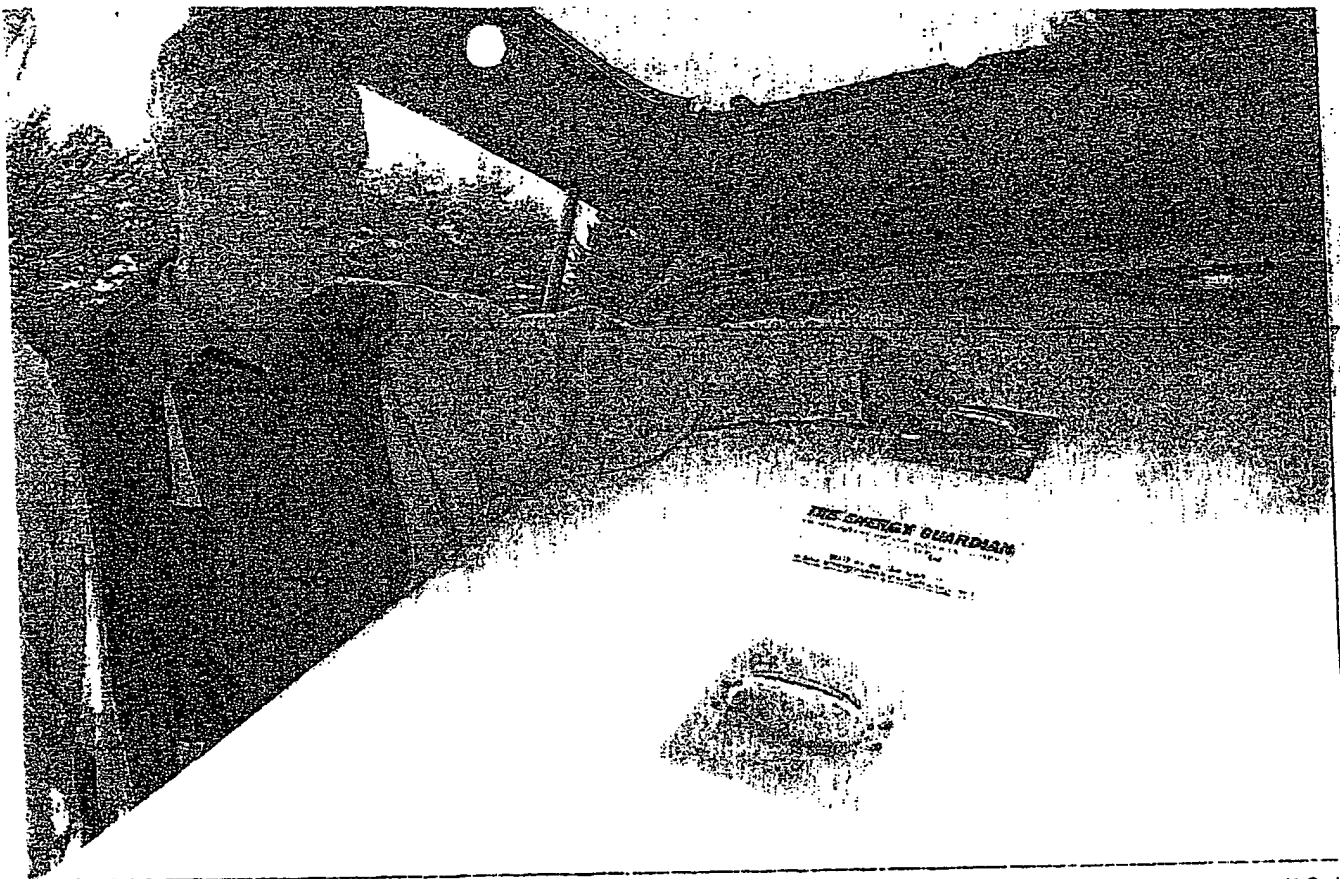
- c) Mr. Alshire has reviewed a large number of energy saving products and procedures.
  - d) Mr. Alshire states that it is his opinion that there has never been a product to properly seal the attic prior to The Energy Guardian™
  - e) The design of The Energy Guardian™ having a lid which fits into a frame is critical for insulating and sealing attic accesses.
- 10) I have attached hereto as Exhibit F an article I prepared for Home Energy Magazine, March/April 2005 Edition. The article accurately references various statements related to The Energy Guardian™. Those statements are:
- a) A statement by Vic Alshire (mentioned in paragraph 9) that "The upgrade must have a two-piece design [as The Energy Guardian™ does] that creates a barrier while also providing access to the attic. Therefore, a single piece unit is fatally flawed for use in most homes."
  - b) A statement by Kevin Soucy, president of Affordable Energy Solutions LLC that "The flimsy solutions used in the industry for years, just don't cut it."
- 11) I have attached hereto as Exhibit G a copy of the July 2003 Issue of Energy Design Update which shows The Energy Guardian™, and three other designs of attic cover. The Energy Guardian™ has listed improvements over a design called the "Draft Cap."
- 12) I have attached hereto as Exhibit H a blower door test result which is representative of repeated test results performed by a number of different organizations showing a dramatic improvement in attic sealing due to the inclusion of The Energy Guardian™.
- 13) I have attached hereto as Exhibit I printouts of various pages from the website of Progressive Energy Solutions, Inc (PES) showing their "Energy Shield I" product. PES is not affiliated with ESS Energy Products, Inc. I have examined the pictures of the Energy Shield and believe it to be a copy of The Energy Guardian™, indicating adoption of the invention by the trade.

- 14) I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

7/22/05  
Date

  
James B. Melesky  
Inventor of U.S. Patent App. Ser. No. 10/024,478

**Exhibit A**



Staff photo by Larry McDavitt

Jim Melesky shows off a model of the Energy Guardian, which he invented to insulate and seal attic accessories in homes after his son complained of his room being too cold. Melesky found no such device available for sale and so decided to manufacture one himself

# If you want something done ...

Do-it-yourself father  
invents energy saver

by GRETCHEN METZ  
Staff Writer

PAOLI — James B. Melesky became an inventor all because his teenage son complained his bedroom was cold in the winter.

Listening to the complaints, Melesky went into his son's closet, climbed up a ladder and poked his head up through the attic hatch cover.

"I looked at it and said, 'There's a hole in my insulation,'" recalls Melesky. Cold air was leaking into his son's room through the spaces around the attic door.

Being a "do-it-yourselfer," Melesky decided to tackle the problem. But when he went looking for a solution, he

found only frustration.

Searching the aisles at the local "big box" home improvement stores for a device to insulate the hatch, he found kits to install hatch covers and kits to install pull-down attic stairs, but nothing to insulate and seal the air leaks around the plywood where the insulation had been cut away by the contractor.

Retail clerks agreed there should be something, but there wasn't.

"You find a solution, you'll sell millions," Melesky said he was told.

So the Tredyffrin resident reviewed the situation and

built a prototype out of plywood and insulation material. The problem, it was 60 pounds. Even his wife told him to rethink the weight.

**"YOU find a solution, you'll sell millions," Melesky said he was told.**

That was 2001. Two years later, Melesky is now the president of his own company, Energy Sentry Solutions, headquartered in Paoli, with a new, less weighty product on the market — the Energy Guardian.

Energy Guardian, a light, high-density expanded polystyrene, fits around the attic access with a tight-fitting insulating door that seals out leakage. Materials for the product

are produced in Allentown. It is assembled near Harrisburg.

As with many innovators/entrepreneurs, Melesky was a customer for one of his first models. He said his electric and air conditioning usage dropped 10 percent in April, 15 percent in May and 20 percent in June from those months a year earlier when he installed the product.

Then Melesky started selling the device to neighbors.

"We think it's great," said Scott Hall, a neighbor in Tredyffrin. "I'm just mad I didn't think of it."

Hall said if someone in the family forgets to close up the Energy Guardian, the difference is felt on the second floor right away.

But it was Hall's utility bills that convinced him the device

♦ See **ENERGY**, Page B8

(From Page B1)

really worked. He said his air-conditioning bills are down 30 to 35 percent in the summer and gas heating bills are down 25 to 30 percent in the winter.

Melesky explains it this way: Homeowners are conscientious about pulling down the flue in the fireplace after the fire goes out to keep cold air from rushing in, and that's only one foot wide.

Meanwhile, the pull-down ladder in a new suburban home might be 12 square feet of noninsulated plywood, with an R-Value of .25 to .5. (R-Value is the measurement of the effectiveness of insulation. The

has an R-Value of R-28 to R-42.

Melesky's product received the Environmental Excellence award from the Kutztown University Small Business Development Center. The award recognizes companies that work with the center's Environmental Management Program.

"They found us," Melesky said. "We didn't go to them."

Rather than heading straight to retail, Melesky marketed his product to the federal government. The product is now used in several federal programs to help low-income families save money on heating bills.

Melesky said he likes that the product is being put to good use. Even better, it is the government that is testing the product. In a recent govern-

ment energy audit alone reduced the air leakage in a test house by 29 percent, Melesky said.

"Talk about a high-impact solution," Melesky said.

The cost of the attic access hatch insulation kit is \$85 and the pull-down stairs insulation kit is \$140. Melesky is offering the price in November and December with no shipping and handling charges.

"A year ago the price was more than \$300," Melesky said, noting that selling in volume makes the difference.

The kit requires no measuring, no tools, no cutting — just take the product into the attic and stick it together.

Information about the product is available on its Web site — [www.energysentrysolu](http://www.energysentrysolu)

phone number to call to order the product.

Melesky said he is currently working with a retail chain to get the product on store shelves. He has applied for a U.S. patent.

Melesky, 54, a retiree from the information technology field, used personal financing for the company's start-up. "It allowed me a pace that was far more prudent," Melesky said.

The flexible pace meant Melesky could take time needed to aggressively work to get feedback and improve the product.

"This is not a quick hit-and-run endeavor," he said. "If they are going to spend the money, I want them to have a good solution."



**Exhibit B**

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- Telescoping Flagpole
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- Customer Testimonials

## SHOPPING CART CONTENTS

I am very happy with the service as well as the product. Thank you very much.  
Doug L, St Louis MO

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TESTED DAILY 06-JUN



#### Portable Ice Maker

This portable ice maker is great for any place you would like ice! Can make up to 35 pounds of ice per day!

Sale Price: \$219.00



#### 13 Gallon Stainless Steel Touchless Trash Can

No more lifting of lids or stepping on devices to open your trash cans. These revolutionary trash can put touchless into throwing away your trash!

Sale Price: \$94.99



#### Attic Dek Flooring System Four (4) Pack 24" On Center Units

Turned unused attic and garage space into storage space with the Attic Dek flooring system. For use on attics with 24" center joists, 4 units per pack.

Sale Price: \$44.50



#### Emergency Backup Flashlight 10 Hour Run Time

Emergency backup LED flashlight always charged, turns on when the power goes out! Average run time 10 hours! Never get left in the dark again.

Sale Price: \$19.95



#### Window Cop Portable Window Alarm

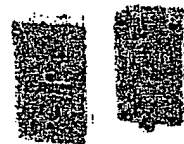
The window cop alarm system, installs in minutes, no tools required, send loud ear piercing alarm if window is opened. For double hung windows.



#### Sensor Plug - World's Only Motion Activated Outlet

World's only motion activated outlet adapter. Maximum usage on 500 watts 110-120 VAC.

Sale Price: \$14.99



#### Ez Faucet Automatic Motion Sensing Faucet

Commercial grade, easy to install motion activated faucet. Simple installation, great design.

Sale Price: \$58.00



#### Attic Dek Flooring System Eight (8) Pack 16" On Center Units

Turned unused attic and garage space into storage space with the Attic Dek flooring system. For use on attics with 16" center joists, 8 units per pack.

Sale Price: \$44.50



#### Emergency Power Failure Backup Light

When the power goes out, this light goes on. 90 minutes of light in the event of power failure.

Sale Price: \$47.90



#### Heartland Dryer Vent Closure System

The Energy Saving Dryer Vent Closure™ keeps outside air out as well as birds, bugs, and rodents; as opposed to conventional dryer vents, where outside air enters your home through the exposed



Sale Price: \$34.95



dryer vent, which means higher heating bills in winter and higher cooling bills in summer. It can be painted and easily mounted over a 4" vent pipe.

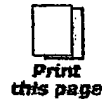
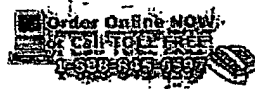


Sale Price: \$15.54

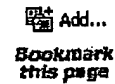
**Kitchen & Bathroom Rolling Shelves Do-It Yourself**



**Energy Guardian Insulated Access Hatches**



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Exhibit C



May 4, 2005

Mr. James B. Melesky  
President  
ESS Energy Products, Inc.  
P.O. Box 400  
Paoli, PA 19301

Dear Jim:

As we conclude our first year of doing business with your firm, I want to give you some feedback on our experience.

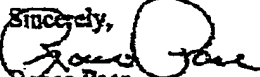
As both the President of this firm as well as the Vice President of the Delaware Valley Chapter of the Air Conditioning Contractors of America, I am always on the lookout for innovative solutions that can save energy or improve the comfort for homeowners.

*The Energy Guardian™* Attic Access Covers are a home run as they do both. The product design is truly unique and innovative. They save energy in both the summer and winter months and make homes more comfortable. I am very pleased that we can provide this solution to our clients. I have been in the heating and air conditioning business for 27 years and there is nothing in the market to compare with your products. They work just as represented and are very cost effective for homeowners.

Your turnkey sales program makes it very easy for any HVAC firm to quickly start up with ESS. We are very pleased with the program and more importantly with our clients' satisfaction with *The Energy Guardian Access Covers*.

I highly recommend your program and products to any HVAC firm.

Sincerely,

  
Rocco Pace  
President

**ESS Energy Products, Inc. - A Division of Oliver Heating & Cooling**

101 Barclay Avenue • Monroeville, PA 15146  
Delaware County (610) 521-1001 • Main Line: (610) 521-1007 • West Chester: (610) 691-3011 • Washington, DE: (302) 774-0223  
Toll Free: 1-800-815-2164 • Fax: (610) 521-1002  
Website: www.essheatingandcooling.com • Email: info@essheatingandcooling.com

Exhibit D

## ABM Custom Builders Inc.

813 West Chester Pike • West Chester, PA • 19382

Telephone (610) 344-7743 • Fax (610) 344-0460

www.abmbuilder.com • art@abmbuilder.com

May 20, 2005

Mr. James B. Melesky  
President  
ESS Energy Products, Inc.  
P.O. Box 400  
Paoli, PA 19301

Dear Jim:

I have been a builder for nearly 30 years and past President of the Chester Delaware County Home Builders Association. I can tell you that I have come across almost every problem imaginable in a home and all types of solutions to those problems.

In all these years, I have never seen a more practical or effective solution than *The Energy Guardian™* Attic Access Covers. These products solve a big problem that exists in virtually all homes today. I can speak from experience as I have one installed in my own home.

Having a product in an area of the home where there is likely traffic is always a tricky matter. First, it has to serve its intended use while being durable. Second, it must be very easy for the homeowner to use it properly and keep it effective. In the case of attic accesses, it is obviously very important to establish both a thermal insulating barrier as well as a tight air seal to stop the energy loss in both hot and cold weather. It must also be sturdy enough to withstand ongoing use. *The Energy Guardian™* Attic Access Covers certainly fit the bill in those essential areas.

However, in order to be effective long term, the thermal barrier and air seal must be re-established easily after a homeowner returns from the attic. If it isn't easy to do correctly, the homeowner is very likely to get it wrong. As a result, it is almost assured that such a solution will not be effective over time.

This is where your product design is even more innovative and practical. When I push the lid into the frame, I can hear and feel the air seal established as the extension of the lid fits into the frame. It is unmistakable. Without that extension or lip, the lid could easily be returned to the wrong position and the air seal would be compromised. With your product, it is almost a certainty that it is always returned properly in place. You have made the solution virtually foolproof.

You have achieved exceedingly high practicality and effectiveness which is a rare combination- congratulations and best wishes.

Yours truly,

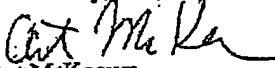
  
Art McKeown  
President

Exhibit E



*Comfort Company LLC*  
4795 St Rt 41 NW  
Washington CH, Oh 43160  
(740) 335-3852

June 24, 2005

Mr James B. Melesky  
President  
ESS Energy Products, Inc  
Po Box 400  
Paoli, Pa 19301

Dear Jim:

I want to share my impressions with you regarding *The Energy Guardian Attic Access Covers*. As you know, I have personally installed a number of your units and even use it as part of training that I provide on a national level for the Weatherization Assistance Program.

Over the past 25 years, I have worked in several important areas regarding residential energy conservation. My experience primarily includes home building and training weatherization experts on energy saving measures. I have frequently been a featured speaker at both regional and national conferences on the subject of energy conservation products, procedures, and methodologies. I have also worked with scientists at Oak Ridge National Laboratory regarding energy conservation measures. As a result, I have reviewed or used virtually every energy saving product and procedure available.

A particular concern of mine has been energy loss through attics in general and attic accesses in particular. More energy is lost through attics than anywhere else in a home. The attic accesses cause a great deal of energy loss in both hot and cold weather conditions. It is my professional opinion that there has never been a product to properly insulate and seal these attic accesses until *The Energy Guardian Attic Access Covers* became available to the industry. They meet all the critical criteria for insulating and sealing these accesses:

- A two piece unit to provide a protective barrier
- High R-Value
- Tight air seal
- A lid that fits into a frame to easily re-establish an air seal when used
- A design that can endure extensive use over a long period of time
- A lightweight unit that is easy for all ages to use

When one accurately projects the energy savings of this product, it has an unusually rapid payback period. Your product should be used as a national standard.


Very Truly,  
  
Vic Aleshire  
President

Exhibit F

# ATTIC ACCESSES: HIGH PRIORITY OR NO BIG DEAL?

Some calculations answer the question. How much does proper attic access insulation matter?

BY JIM MELESKY

**M**y firm, Energy Sentry Solutions, provides a product—the Energy Guardian—to insulate and seal attic accesses. In the course of everyday business, I have come upon a recurring difference of opinion among weatherization professionals regarding the importance of attic upgrades. Indeed, all weatherization programs address attic accesses with a wide variety of remediation measures. How much energy and money will the crew save the home's occupants by insulating and sealing the attic access? The answer can have a huge impact on projected savings, on the amount budgeted for this improvement, and on the type of measures used to upgrade this 5–10 ft<sup>2</sup> area of the home.

## How Much Do Attic Accesses Matter?

To evaluate the consequences of different remediation measures, let's first examine the impact of attic pull-down ladders and pop-up hatches on the entire attic thermal barrier. While the measurements of the opening vary slightly, a typical attic ladder creates a 10 ft<sup>2</sup> opening. The ladder is attached to 1/4-inch plywood that has an R-value of 0.31.

There are some who insist that the lack of insulation over an attic access is of little consequence; they calculate the impact of not insulating the access by using an average R-value formula. In this case, we will examine a home with a



Alexis Garcia pokes her head through an attic access.

1,000 ft<sup>2</sup> attic that has R-38 insulation in the attic floor. The attic access is a pull-down ladder. To calculate the average R-value of the attic they use this formula:

$$[(38 \times 990 \text{ ft}^2) + (0.31 \times 10 \text{ ft}^2)] / 1,000 \text{ ft}^2 = R-37.6$$

If this is correct, the pull-down ladder reduces the thermal barrier for the entire attic from R-38 to R-37.6. It would follow that the upgrade does not warrant much emphasis. In fact, this analysis is incorrect, but unfortunately people continue to believe in it to this day.

The DOE Weatherization Assistance program's *Residential Energy Workbook* explains in plain language how energy is

wasted in existing homes and offers a host of ways to upgrade homes for cost savings and improved comfort. The workbook addresses this specific matter of attic hatches with the following formula:

A/R for the pull-down + A/R for the rest of the attic = A/R total, where A = area and R = R-value.

$$990 \text{ ft}^2 / 38 + 10 \text{ ft}^2 / 0.31 = 58.31$$

$$U = UA/A, \text{ where } U = U\text{-value}$$

$$58.31 / 1,000 \text{ ft}^2 = 0.05831$$

$$\text{Effective R-value} = 1/U = 17.1$$

This formula shows that the impact of not insulating an attic access is dramatic. The pull-down ladder reduces the R-value for the entire attic by 55%.

Exhibit G

# Energy Design Update

The Monthly Newsletter on Energy-Efficient Housing, from Aspen Publishers

Vol. 23, No. 7

July 2003

## INDUSTRY NEWS

### Energy Star Labels For Water Heaters

In recent months, the US Department of Energy (DOE) has been seeking input from water heater manufacturers and other "stakeholders" to discuss plans to introduce Energy Star labels for residential water heaters. The DOE hopes to launch the new Energy Star program before January 20, 2004, when more stringent minimum Federal performance standards for water heaters take effect (see *EDU*, February 2001).

As a first step in formulating Energy Star standards for water heaters, the DOE contracted with a consulting firm, D&R International of Salem, Oregon, to outline options for DOE consideration. After D&R's report,

"Energy Star Labeling Potential for Water Heaters," was released for public review in early April, the DOE received a flood of comments from water heater manufacturers and energy-efficiency agencies. (These comments, along with other relevant documents, are posted on the Web at [www.energystar.gov/index.cfm?c=new\\_specs\\_water\\_heaters](http://www.energystar.gov/index.cfm?c=new_specs_water_heaters).)

#### Dividing Appliances Into Categories

There are several technical and political reasons why setting Energy Star standards is far thornier for water heaters than for refrigerators (see "Why There's No Energy Star Program for Water Heaters," *EDU*, October 2001). One problem, the "apples-to-oranges" dilemma, arises from the fact that water can be heated so many different ways: by burning firewood or fossil fuels (usually natural gas, propane, or oil), by electric resistance elements, by air-source or ground-source heat pumps, or by solar thermal collectors. Moreover, water can also be heated by passing it through a heat exchanger connected to a space-heating boiler.

One suggested solution — establishing different Energy Star standards for different fuels — may confuse consumers. As noted by Bill Kallock, senior project manager at the Vermont Energy Investment Corporation, "An Energy Star program will most likely create the potential for consumers to assume that two Energy Star-labeled units that use different fuels will yield similar cost savings and environmental benefits. This does a disservice to consumers if they choose an Energy Star-labeled unit of one fuel type that ends up costing them more to operate than a non-labeled unit of another fuel type."

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**ASPEN**  
PUBLISHERS

Moreover, categorizing water heaters according to fuel type would not necessarily satisfy water heater manufacturers. For example, manufacturers of electric resistance heaters do not want to see their products compared directly with heat-pump water heaters, since their products fare poorly in such a comparison (see Figure 1). For the same reason, manufacturers of gas storage tank water heaters would prefer not to be compared directly to instantaneous gas water heaters.

### The D&R Report

According to Richard Karney, the DOE manager in charge of the Energy Star program for water heaters, the D&R International report has his blessing. The report proposes two potential paths or scenarios:

- The first scenario would include best-performing water heaters in each of five categories defined by the DOE, including electric resistance storage water heaters
- The second approach would exclude electric resistance storage water heaters, but would include at least some water heaters from the following categories: solar water heaters, heat-pump water heaters, instantaneous gas water heaters, gas storage water heaters, and oil storage water heaters.

The first scenario would require, according to the DOE's method of categorization, that water heaters be assigned to one of five different groups, each of which would have a different minimum Energy Factor (EF) for earning an Energy Star label: electric resistance storage water heaters (0.934 EF); heat-pump water heaters (2.4 EF); gas storage water heaters (0.627 EF); gas instantaneous water heaters (0.82 EF); and oil storage water heaters (0.55 EF). The report, following the existing DOE water heater categorization system, suggests that solar water heaters be classified as a type of electric resistance storage water heater, according to the logic that electric resistance elements are the most common backup method for solar

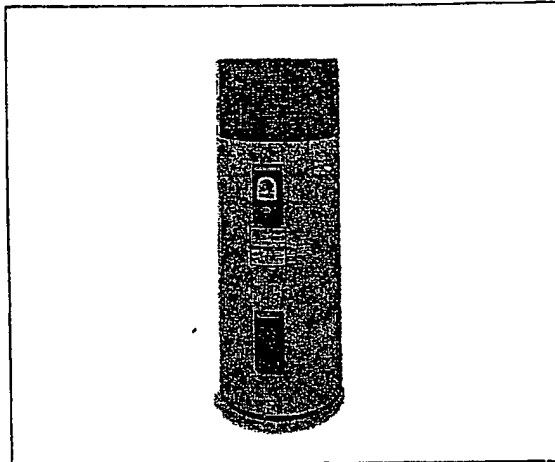


Figure 1. A heat-pump water heater, like this WaterSaver unit from ECR International, removes heat from the air and transfers it to water stored in a tank. Operation of a heat-pump water heater cools and dehumidifies the space in which the water heater is located.

water heating systems. (In fact, many solar hot water systems are backed up by gas instantaneous heaters.) Scenario One would allow at least some examples of each of the five types of water heater to be eligible for an Energy Star label.

The DOE's proposed categories have drawn criticism. According to Charles Stephens, policy analyst at the Conservation Division of the Oregon Office of Energy, "The Department [of Energy] seems determined to arbitrarily subdivide the equipment choices into smaller compartments than is justified. First there's the fuel subdivision, which is admittedly common. Then there's the storage versus instantaneous subdivision. And then the renewable versus non-renewable subdivision, which seems to be why solar finds itself fitting so uneasily into the picture.... The proposed distinction between electric resistance and heat-pump water

Editor: Martin Holladay  
Senior Managing Editor: Vicki Dean

Group Publisher: Richard Kravitz  
Editorial Director: Beverly Salpin

Managing Editor: David Ford  
Production Editor: M. Foronda

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Editor's Contact Information: Martin Holladay, *Energy Design Update*, P.O. Box 153, Sheffield, VT 05856. E-mail: [holladay@sover.net](mailto:holladay@sover.net); Tel: (802) 626-1082; Fax: (802) 626-9982.

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heaters, and between storage-type and instantaneous natural gas-fired water heaters, is highly inappropriate. While there are certainly application issues associated with the more advanced technologies, as always, the relative efficiencies, as measured by the Energy Factor, are absolutely an indicator of a consumer's annual energy bills for heating water with each type."

The "inappropriate" distinctions highlighted by Stephens would have the effect of favoring manufacturers of electric resistance storage heaters and gas storage heaters. Of course, most manufacturers of instantaneous water heaters would prefer to see their products judged against all other gas-burning water heaters. "The question should simply be, How much fuel does the product use to produce the hot water demanded?" notes John Confrey, product development and marketing manager at Noritz America, a manufacturer of instantaneous heaters. "I feel that holding instantaneous water heaters to a higher standard than storage tank water heaters will be detrimental to the growth in usage of these highly efficient products, which seems to go contrary to Energy Star's intent."

#### Solar Equipment Is Electric Equipment

Many commenters are scratching their heads over the DOE contention that solar water heaters are a type of



Figure 2. According to the Department of Energy, solar water heaters, like this collector from Heliodyne, should be categorized as electric water heaters.

electric water heater (see Figure 2). "The paper prepared for DOE proposes that solar systems be considered a subset of electric resistance systems," writes Harvey Sachs, Buildings Program Director at the American Council for an Energy-Efficient Economy. "The ACEEE believes that this sends a message that electric resistive systems can be very efficient. We strongly prefer to treat solar water heating as its own class, rated and qualified on the basis of performance of the solar collector and the rest of the system."

Table 1 — Payback Analysis

Product Category	Cost for Products Meeting Minimum Federal Standard	Cost for Products Meeting Proposed Energy Star Standards	Incremental Cost	Estimated Annual Cost Operating Savings	Approximate Payback Period (years)
Gas storage	\$270	\$380	\$110	\$14	8
Gas Instantaneous	\$900	\$1,100	\$200	\$36	6
Electric Storage	\$280	\$380	\$100	\$12	2
Solar (compared to electric storage)	\$430	\$5,090 installed	\$4,660	\$257	18
Heat pump (compared to electric storage)	\$430	\$1,350 installed	\$920	\$255	4

Table 1. The figures in this payback analysis come from "Energy Star Labeling Potential for Water Heaters," a report prepared for the Department of Energy by D&R International of Salem, Oregon.

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In his own comments to the DOE, Charles Stephens was more blunt. "DOE is determined to lump [solar water heating systems] in with the electric technologies. Why is this?" Stevens asks. "We are completely at a loss to understand why the Energy Star program is determined to include this type of system, when by the criteria used to judge the other technologies, it clearly doesn't fit. Except, of course, in its own fuel class, like the others."

### Analyzing Payback

The D&R report calculates the payback periods for the incremental cost of five types of water heaters complying with proposed Energy Star standards (see Table 1, page 7). These payback periods range from two years (for the \$100 incremental cost of an efficient electric resistance storage water heater) to 18 years (for the \$4,660 incremental cost of a solar water heating system compared to an electric resistance storage water heater). The report did not include a payback analysis for instantaneous gas water heaters.

In light of the long payback period for solar water heaters, Glenn Reed, a residential program manager for Northeast Energy Efficiency Partnerships, questioned whether solar systems should even be considered for Energy Star eligibility. "If DOE's cost and savings assumptions regarding solar water heaters are correct, then DOE should consider what it wants to convey to a potential purchaser by qualifying these products with an Energy Star label," wrote Reed. "While solar hot water heaters do save significant energy, an 18-year payback seems excessive — and this is compared to a conventional electric water heater."

However, Bion Howard, president of Building Environmental Science and Technology in Edgewater, Maryland, doubts the validity of D&R's 18-year payback calculation, in light of the high equipment cost on which the calculation is based. "Reviewing the price points used by D&R International, my reaction was that ten-year-old pricing figures [for solar systems] have crept in," wrote Howard. "There are complete [solar] systems with robust consumer warranties available now for about \$3,500 installed, not \$5,000 plus."

The payback analysis for heat-pump water heaters is also open to question, since it assumes an Energy Factor of 2.37. Field studies of heat-pump water heaters have shown significantly lower efficiencies. For example, researchers in Connecticut hoped that the 30 heat-pump water heaters enrolled in a 2001 study would have an average coefficient of performance (COP) of 2.25; instead, the units had an actual average COP of 1.69 (see "Northeast Utilities Field Study Gives

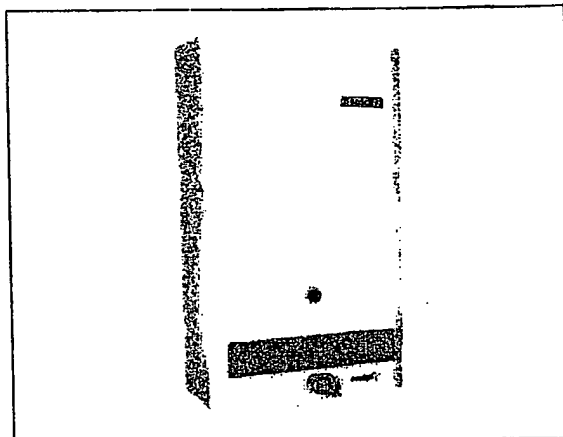


Figure 3. As currently envisioned, the Energy Star program for water heaters would require instantaneous gas water heaters, like this model from Bosch Aquastar, to meet a higher efficiency standard than gas storage water heaters.

Crispaire HPWH Very Mixed Reviews," EDU, December 2001)

### Treating Instantaneous Gas Heaters Fairly

According to the DOE proposal, gas storage water heaters would not be compared directly with instantaneous gas water heaters. While gas storage units would need an EF of only 0.627 to earn an Energy Star label, instantaneous units would need an EF of 0.82 (see Figure 3). According to George Penn of Global Energy Options in Madison, Wisconsin, "Comparing heat-pump water heaters and solar water heating [systems] to storage electric water heaters while not comparing on-demand gas water heaters to gas storage water heaters ... illogically places on-demand gas water heaters in a disadvantaged position."

Mary Moffroid, president of Controlled Energy Corporation, a distributor of instantaneous gas water heaters, would prefer that the Energy Star bar for gas instantaneous heaters be lowered. "Setting the [proposed] EF [for Energy Star instantaneous gas water heaters] at 32% above the Federal minimal standard of .62 is excessive," wrote Moffroid. "According to the DOE Office of Energy Efficiency and Renewable Energy, 'Energy Star-labeled appliances exceed existing Federal efficiency standards, typically, by 13% to 20%.' And yet the proposed Energy Star standard for instantaneous water heaters (.82) would exceed the Federal minimum standard (.62) by 32%. A more typical 20% increase would have an Energy Star threshold set at .75. (Note that proposed Energy Star gas storage tanks would exceed Federal minimum standards by 7%, electric storage tanks by 3%.)"



### Indirect Water Heaters are Missing

The D&R report makes no mention of indirect water heaters, which are commonly installed in new homes in New England, where hydronic heat dominates. This may be due to the fact that there is no agreed-upon method to rate the efficiency of indirect water heaters, which need to be rated as a system, not as an appliance. "How will indirect water heaters (from a boiler) be considered?" wonders Joe Swift, a program planner at Northeast Utilities in Berlin, Connecticut. "This [DOE proposal] will possibly encourage contractors and consumers to install a separate Energy Star water heater along with a boiler, even though an indirect off-the-boiler [tank] may be (and probably is) the preferred option for the consumer."

### Little Room for Differentiation

While instantaneous gas water heaters dominate the residential market in Europe, the US water-heater market is overwhelmingly dominated by electric and gas storage heaters. When comparing the least efficient to the most efficient storage water heaters, one is struck by the limited range (see Table 2). Once the new Federal standards take effect next year, available electric storage water heaters will have Energy Factors (EFs) ranging from 0.90 to 0.95, while gas storage water heaters will have a EF ranging from 0.59 to 0.65.

According to many observers, this range is too narrow to justify establishing an Energy Star program for storage water heaters, especially since the Energy Star label is usually reserved for appliances that perform 13%-25% better than typical unlabeled appliances. Consumers looking for dramatic improvements in water-heating efficiency will not find it among storage

water heaters, even if they select the best available models. Instead, they will need to choose from technologies that now make up only a narrow slice of the market: instantaneous gas water heaters, heat-pump water heaters, and solar water heaters.

Harvey Sachs urged the DOE to exclude electric resistance water heaters from any Energy Star program. "There should be no program for technologies where the range of available efficiency ratings is less than about 10%," he writes. "The small potential savings for consumers from products in such categories threaten the Energy Star program's brand equity as a symbol of products that provide significant energy savings. For this reason, ACEEE opposes an Energy Star program for resistance water heaters."

Ted Williams, director for Codes, Standards & Technical Support at the American Gas Association, agrees with Sachs on this point. "Proposed minimum efficiencies for Energy Star labeling of electric storage water heaters would offer insignificant energy savings and misleading information to consumers," wrote Williams. "As DOE heard at the April 16 meeting, an Energy Star labeling energy factor (EF) of 0.93 over a 2004 minimum efficiency of 0.90 (both for a 50-gallon storage water heater), saves little energy and, as one participant stated, may 'cheapen the image of Energy Star' by not providing energy and operating cost savings commensurate with other Energy Star Labeled products or even other residential water heater technologies."

### Excluding Electric Resistance Heaters

The D&R report presents the argument in favor of excluding electric resistance water heaters in its second

Table 2 — Energy Factor (EF) of Storage Water Heaters

	Gas storage water heaters	Electric storage water heaters
Current Federal minimum (EF)	0.54	0.86
2004 Federal minimum (EF)	0.59	0.90
Proposed Energy Star standard (EF)	0.627	0.934
Best available equipment (EF)	0.65	0.95

Table 2 Once new Federal minimum standards for water heaters take effect on January 20, 2004, only a relatively narrow range will separate the performance of the worst available storage water heaters from those meeting the proposed Energy Star standard. In contrast, the Energy Factor (EF) of some gas instantaneous water heaters exceeds 0.82, while the EF of some heat-pump water heaters is over 2.

scenario. According to the report's authors, "The savings of advanced [heat pump and solar] water heater technologies over a conventional electric resistance water heater per installation may be in the range of 3,000 kWh annually. This tremendous savings potential is much greater than the typical 100 kWh annual savings estimated by simply using the better performing electrical resistance water heater. Even at 1% market share, the advanced technologies national energy savings contribution is dramatically improved."

The argument for Scenario Two is bolstered by the fact that heating water with electric resistance is very expensive in most areas of the country. "An electric Energy Star water heater will probably (in most cases) cost more to operate than a fossil fuel non-Energy Star water heater," wrote Joe Swift. "Yet [under Scenario One] the customer may be likely to choose the electric heater because of the [Energy Star] label, even though it may not be in their best interest."

Anne Wilkins, Senior Program Manager for the Office of Energy Efficiency at Natural Resources Canada, argues in favor of excluding most gas storage water heaters as well. "Standard gas storage water heaters tanks should be excluded from the mix because the Energy Factor for these units max at about 65%," she wrote. "There could be some advantage to considering direct vent/sealed combustion units which prevent the space heating losses up the flue."

#### **Are Heat-Pump Water Heaters Dependable?**

The most efficient available water heaters — including solar, gas instantaneous, and heat-pump water heaters — cost more and require more maintenance than common gas or electric storage water heaters. As noted by Glenn Reed, the residential program manager for Northeast Energy Efficiency Partnerships, "Utilities in the Northeast have been running heat-pump water heater R&D projects for well over a decade. Reliability concerns remain." Because of these concerns, the D&R report notes that it "may be premature" to include these technologies in an Energy Star program.

Yet for Harvey Sachs, the potential energy savings from switching to heat-pump water heaters justify the initial investment and possibly higher maintenance costs. "The savings from new residential water heating technologies at low market penetration rates dwarf those from modest improvements to existing storage technologies," wrote Sachs. "Therefore, the focus of an Energy Star program should be transforming the market toward these new technologies. ACEEE strongly recommends launching a program for heat-pump

water heaters. As shown by the Department's own analysis, the potential savings, even at modest market penetration rates, dwarf those of other technologies."

Brad Hollomon from the Pacific Northwest National Laboratory notes that D&R's report may underestimate the potential energy savings from solar and heat-pump technology. "Just as compact fluorescent lights don't pay for themselves in closets where they are used for only a few minutes a day, heat-pump and solar water heaters are attractive primarily where hot water use and electric rates are high, and other options are not available," wrote Hollomon. "If one credits consumers with the good judgment to buy heat-pump and solar water heaters preferentially for applications where they make the most economic sense, the energy (and corresponding cost) savings will be higher than the 1,095 billion Btu in national savings predicted. Using national averages for water use, etc., to characterize the impact of the advanced technologies understates their impact."

#### **Missing: Systems Thinking**

According to some analysts, including Bion Howard, the DOE is setting its sights too low. Rather than merely labeling pieces of equipment, Energy Star should develop a program to rate residential hot water *systems*, in the same way that HERS raters certify Energy Star homes. Only then will it be possible to include credit for such features as drain-water heat recovery, piping efficiency, and indirect water heaters, none of which are mentioned in the D&R report (see "Designing a 'Green Bundle' Water Heating System," *EDU*, March 2001). Advocates of rating systems instead of appliances note that the efficiency improvements to be gained by installing home-run PEX tubing and GFX drain-water heat recovery systems should not be ignored, since they represent cost-effective "low-hanging fruit."

#### **A Taboo Against Switching Fuels**

In addition to the technical hurdles faced by the DOE, the agency is also hobbled by political considerations. For the subset of US consumers who are interested in energy savings, the main motivation is saving money. For some consumers, the easiest way to lower water heating bills is to switch fuels — in most cases, from electricity to natural gas. But according to DOE's Richard Karney, fuel switching considerations are taboo at the DOE. "We're not going to be talking about fuel switching," he says. "Historically, we have never advocated fuel switching, throughout the Federal standard-setting processes. Even though Energy Star is a voluntary program, we won't go there. That is one of the agreements the Department has made with the gas industry and the electrical industry."

Considering the tangle of issues barring the way to a successful Energy Star program for water heaters, some critics wonder whether the program would even have any benefit to consumers. "Water heaters already have easy-to-read, easy-to-understand Energy Guide labels," notes Joe Swift. "Why fix it if it's not broken?"

#### An Ambitious Timetable

Richard Karney, undeterred by the daunting nature of his assigned task, is determined to establish an Energy Star program for water heaters. "Originally we hoped to release initial Energy Star criteria for public comment at the beginning of June," he says. "Now we're

looking at the end of June or the beginning of July. At that time we'll release proposed criteria for review and comment. We will conduct a stakeholders' meeting toward the end of August in Washington. For the release of the final criteria, we're still shooting for October 1st. We'd like to give the industry a couple of months to gear up before any Energy Star guidelines take effect in January 2004, coinciding with the new Federal standard."

For more information, visit [www.energystar.gov/index.cfm?c=new\\_specs.water\\_heaters](http://www.energystar.gov/index.cfm?c=new_specs.water_heaters), or contact Richard Karney at [richard.karney@ee.doe.gov](mailto:richard.karney@ee.doe.gov).

## Canadian Energy Star Window Standards Finalized

After floating a draft proposal and soliciting comments from stakeholders, Natural Resources Canada in late April published its criteria for Energy Star windows and sliding glass doors in Canada (see *EDU*, May 2003). The final version of the criteria is somewhat less stringent than the earlier draft proposal.

For the purposes of Canada's Energy Star window program, Canada has been divided into four climatic zones. (In the earlier draft, only three zones were proposed; the final version includes a new Zone D in the far north.) The four zones are defined by heating degree days (see Table 3).

In Canada, the Energy Star windows program will be phased in gradually over the next two years; full implementation will occur until April 1, 2005. In the interim, two transitional periods will be recognized. From now until March 31, 2004, any window that qual-

ifies for an Energy Star label in the northern zone of the US (i.e., a window with a maximum U-factor of 0.35) may be promoted as an Energy Star window in Canada. From April 1, 2003 until March 31, 2005, windows sold in Canada cannot be labeled as Energy Star windows unless they comply with one of two compliance paths. The first path includes a maximum U-factor and maximum air leakage levels; the second path requires a minimum Energy Rating (see Table 4).

Full implementation of the Energy Star window program in Canada begins on April 1, 2005. At that time, the criteria are ratcheted up a notch (see Table 5).

For more information, contact Steve Hopwood, Office of Energy Efficiency, Natural Resources Canada, 615 Booth Street, 4th Floor, Ottawa, Ontario K1A 0E4, Canada. Tel: (613) 995-6741; E-mail: [shopwood@nrcan.gc.ca](mailto:shopwood@nrcan.gc.ca).

Table 3 — Climatic Zones for Canadian Energy Star Windows

	Cities	Heating Degree Days
Zone A	Vancouver	Less than 6,300
Zone B	Toronto, Montreal, Quebec City	6,300 to 10,000
Zone C	Edmonton, Saskatoon, Winnipeg	10,000 to 14,500
Zone D	Yellowknife, Churchill	Over 14,500

Table 3 In the final version of the Canadian Energy Star window criteria, Canada has been divided into four climatic zones

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Table 4 — Interim Criteria for Canadian Energy Star Windows

	Maximum Air Leakage (m <sup>3</sup> /h)/m	and	Maximum U-factor for Energy Star Windows	or	Minimum ER for Operable Energy Star Windows	Minimum ER for Fixed Energy Star Windows
Zone A	1.65	and	0.35	or	-16	-6
Zone B	1.65	and	0.33	or	-13	-3
Zone C	1.65	and	0.30	or	-10	0
Zone D	1.65	and	0.25	or	-5	+5

Table 4 Windows sold in Canada will be able to meet Energy Star standards by either of two compliance paths. The first path includes maximum values for U-factor and air leakage, while the second path requires a minimum Energy Rating (ER). The values shown in this table are interim values to be used during the phase-in period from April 1, 2004 until March 31, 2005.

Table 5 — Final Canadian Energy Star Window Criteria

	Maximum Air Leakage (m <sup>3</sup> /h)/m	and	Maximum U-factor for Energy Star Windows	or	Minimum ER for Operable Energy Star Windows	Minimum ER for Fixed Energy Star Windows
Zone A	1.65	and	0.35	or	-16	-6
Zone B	1.65	and	0.32	or	-12	-2
Zone C	1.65	and	0.28	or	-8	+2
Zone D	1.65	and	0.25	or	-5	+5

Table 5 On April 1, 2005, the criteria shown above will take effect.

## NEWS BRIEFS

CAMBRIDGE, MA — The Union of Concerned Scientists, in a report that grades state governments on their support for renewable energy, has given its highest mark, an A minus, to California and Nevada. Three other states — New Mexico, Massachusetts, and Minnesota — received honorable mentions by earning B's. The thirteen states tying for last place — Alaska, Colorado, Indiana, Kentucky, Maryland, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Utah, and West Virginia — all received F's. "Renewable electricity can provide future generations with safe and cost-effective domes-

tic energy sources," said Jeff Deyette, UCS analyst and co-author of the new report, *Plugging in Renewable Energy: Grading the States*. "But only five states are carrying the ball for the entire nation. It is time for the federal government to enact a fair national standard to improve our country's energy security and environment." To see how all 50 states were graded, visit [www.ucsusa.org/news/cfm?newsID=343](http://www.ucsusa.org/news/cfm?newsID=343).

PHOENIX, AZ — Arizona Governor Janet Napolitano has signed into law a new bill, HB 2324, requiring

buildings owned by state agencies and universities to achieve a 15% reduction in energy use per square foot of floor area by 2011. The legislation also requires that all appliances purchased by the state be Energy Star-compliant. According to the Southwest Energy Efficiency Project (SWEET), the bill will lower energy costs at state facilities by \$90 million during the 12 years from 2004 to 2015. "With the passage of HB 2324, state government will be doing its part," said Howard Geller, SWEET's executive director. "Now it is time to expand energy efficiency policies and programs for households, businesses, and industry in Arizona."

PARIS, FRANCE — Electrical appliances are the fastest growing energy users after automobiles, according to a study released by the International Energy Agency. Appliances account for 30% of electrical consumption in the countries surveyed (i.e., members of the Organization for Economic Cooperation and Development). The number of appliances per capita is increasing, and electrical consumption for appliances is expected to grow 25% by 2025. The fastest growing electrical appliance end-use is phantom loads — that is, standby power consumption by appliances that appear to be "off." According to the study, "Cool Appliances: Policy Strategies for Energy-Efficient Homes," additional appliance efficiency gains of up to 30% are possible. The report calculates that government programs targeting the lowest life-cycle cost for residential appliances could result in reductions of carbon dioxide emissions equivalent to 30% of Kyoto Protocol goals, saving money in the process. According to the report, the average North American household consumes 2.4 times the electricity of the average European household. The report can be purchased for 75 Euros at [www.iea.org/books](http://www.iea.org/books).

CAMBRIDGE, MA — Efficiency Vermont, the country's first ratepayer-funded energy-efficiency utility, was one of five 2003 winners of the Innovations in American Government Award. The honor, which is awarded by Harvard University's John F. Kennedy School of Government, identifies and promotes excellence and creativity in the public sector. Efficiency Vermont provides rebates for the purchase of energy-efficient products, energy-saving services for low-income Vermonters, and technical and financial assistance for the construction of energy-efficient homes. Efficiency Vermont calculates that over the last three years, its programs have saved 99,000 megawatt-hours of electricity, equivalent to the power generated by three hydroelectric dams on Vermont's Winooski River.

WASHINGTON, DC — US senators were still debating their version of the energy bill, S 14, as this issue of EDU went to press. According to the American Council for an

Energy-Efficient Economy (ACEEE), the bill under consideration "falls far short of the energy efficiency policy measures needed to make a real difference for America's energy security, economic recovery, and environmental sustainability." According to Steven Nadel, ACEEE's executive director, "The Senate bill contains worthwhile appliance standards and tax credits for advanced efficiency technologies, but it fails to make a real dent in our oil dependence or electricity use."

NEW YORK, NY — A multifamily apartment building on Roosevelt Island in New York's East River, the Octagon Building, will soon be retrofitted with 50 kW of photovoltaic (PV) modules, enough to power the buildings' mechanical systems, elevators, and common areas. The 500-unit apartment complex will also receive insulation improvements, a cogeneration plant, and a new heating system using ground-source heat pumps. The cost of the PV system is being subsidized by a \$250,000 grant from the New York State Energy Research and Development Authority.

WATERLOO, ONTARIO — Arise Technologies, a Kitchener, Ontario engineering and development company, announced that Cook Homes has completed the first of 15 planned photovoltaic-equipped homes in a new subdivision in Waterloo. About one-third of the \$42,000 (Canadian) cost of each home's PV system will be covered by a grant from the Canadian government's Climate Change Action Fund.

HELENA, MT — Montana Governor Judy Martz has signed legislation assuring the continuation of the state's public purpose funding (also known as the system benefits charge) through 2005. According to ConWeb, a monthly online newsletter produced by Energy NewsData in Seattle, the legislation guarantees that 2.4% of utility revenues will be used to support energy-saving, renewable energy, and low-income programs. Currently, Montana's system benefits charge generates \$13 million annually, 17% of which is earmarked for low-income weatherization assistance.

BRUSSELS, BELGIUM — European markets have the potential to increase the number of installed residential solar thermal systems by a factor of 100, according to "Sun in Action II," a recent report issued by the European Solar Thermal Industry Federation (ESTIF). "Solar thermal has grown by 11.7% per year over the past decade," notes ESTIF president Ole Pilgaard, "and still the technical potential for this clean technology is largely untapped." According to the report, regulations in some European cities, including Barcelona, already require the installation of solar thermal systems in new res-

idential construction. Over 80% of the existing solar thermal systems in Europe are found in only three countries: Germany, Greece, and Austria. The complete ESTIF report is posted on the Web at [www.estif.org/11.0.html](http://www.estif.org/11.0.html).

**SYDNEY, AUSTRALIA** — A technical manual for green residential construction, *Your Home*, has received the Environmental Leadership in Communications Award, an annual prize awarded by the Banksia Environmental Association in Australia. *Your Home*, a technical design guide for the residential construction industry and Australian homeowners, includes information on insulation, glazing, photovoltaics, passive solar design, and the selection of energy-efficient appliances. The book was produced by the Institute for Sustainable Futures at the University of Technology in Sydney, and is being distributed by the Australian Greenhouse Office. *Your Home* is posted on the Web at [www.yourhome.gov.au](http://www.yourhome.gov.au).

**WASHINGTON, DC** — US wind generation capacity is expected to increase 25% in 2003, according to an estimate from the American Wind Energy Association. By the end of the year, new generation capacity of 1,100 to 1,400 megawatts will boost the total US wind capacity to 6,000 megawatts. Among the wind projects scheduled for 2003 is a 750-kW installation in South Dakota, where the Rosebud Sioux tribe will be installing wind turbines to provide 80% of the needs of the Rosebud Casino. For more information, visit [www.awea.org/projects/index.html](http://www.awea.org/projects/index.html).

**WASHINGTON, DC** — Lawn tractors are becoming "America's new SUV," according to an April 24 article in the *Washington Post*. The article takes note of two concurrent trends: the average size of US lawns is shrinking, while the average horsepower of lawnmowers continues to rise.

**TOKYO, JAPAN** — Photovoltaic (PV) module manufacturer Mitsubishi Electric plans to increase its production capacity by 50% in 2003, according to an article on Solarbuzz.com, a solar energy Web site. Mitsubishi reports that sales of their PV modules are increasing rapidly in North America and China.

**WATSONVILLE, CA** — Homeowners have begun moving into new homes at Vista Montana, described as the largest development of zero-energy homes in the US. According to

a May 18 article in the *San Francisco Chronicle*, each Vista Montana home is equipped with a 2-kW photovoltaic (PV) system, expected to meet about 60% of the average family's needs. When completed in 2005, the project, developed by Palo Alto builder Clarum Homes, will have 257 homes priced at \$340,000 to \$480,000. Clarum Homes vice president John Suppes estimates that each home's energy-saving features add \$20,000 in construction costs. According to the *Chronicle* article, Debora Lichliter, director of marketing at rival Centex Homes, doubts that the average home buyer cares about energy efficiency. Lichliter is quoted as saying, "It seems the average person really wants their granite countertops."

**SUNNYVALE, CA** — The SunPower Corporation has announced the production of a new 3-watt photovoltaic (PV) cell, the A-300, that converts sunlight to electricity at an efficiency of 20.4%. The cell's efficiency has been verified by the National Renewable Energy Laboratory in Golden, Colorado. SunPower is gearing up to produce large quantities of the new PV cells in 2004. For more information, visit [www.sunpowercorp.com](http://www.sunpowercorp.com).

**SACRAMENTO, CA** — A bill requiring every new California home to include a 2.4-kW photovoltaic (PV) system has gone down to defeat. The legislation, Senate Bill 289, was heavily opposed by the residential construction industry. According to an article in the *Sacramento Bee*, Republican Senator Dick Ackerman said, "Solar power is not there yet. The real solution to the energy crisis is to build more power plants."

**CANBERRA, AUSTRALIA** — The Australian government has decided to extend its rebate program for new photovoltaic (PV) systems for another two years. According to a news article on Solarbuzz.com, a solar energy Web site, the government sees the PV rebate program as an important element of Australia's commitment to reducing greenhouse gas emissions.

**LADERA RANCH, CA** — Construction has begun at Terramor, one of the largest green developments in the country. According to developer Rancho Mission Viejo, the project in Ladera Ranch will eventually include 1,260 photovoltaic-equipped Energy Star homes priced at \$250,000 to \$700,000 each.

---

## RESEARCH AND IDEAS

### Blowing Polystyrene Beads

In many areas of the Northeast, older brick homes have exterior walls built of several wythes of structural

brick. The interior finish typically consists of lath and plaster installed on vertical furring strips (often mea-

sureing a full 1 inch in thickness) attached to the brickwork. For weatherization contractors, insulating such walls is a challenge, since cellulose does not flow well in shallow cavities

In Europe, such cavities are often filled with polystyrene beads; in some cases the polystyrene is mixed with an adhesive to bind the beads together after installation. Although polystyrene beads, known as "prepuff" in the polystyrene industry, are not sold in the US for use by insulation contractors, the material may be available from some manufacturers of polystyrene products (e.g., food coolers).

### Dumpster Diving

One of the US pioneers of polystyrene-bead blowing is Daniel Stewart, who developed techniques for insulating shallow wall cavities in the Philadelphia area in the early 1990s. Stewart collected his raw material, polystyrene blocks used in shipping, from appliance-store dumpsters. He took the discarded polystyrene and ground it up in a garden chipper-shredder. "It didn't grind the polystyrene fine enough, so I modified the shredder by attaching a 1/4-inch hardware-cloth screen at

the outlet. The screen held the material in the shredder longer." Stewart installed the beads using a modified cellulose blower. "At first, the polystyrene beads wouldn't flow through the hopper. It needed more air. I had to design a hopper that allowed both air and the polystyrene beads in. Eventually I developed my own hopper made out of a trash can." Stewart was pleased with the results, noting that "polystyrene beads flow extremely well."

Vic Aleshire, a weatherization contractor in Washington Court House, Ohio, began insulating cavities with polystyrene beads after learning the technique from Stewart. "We use a high air feed but a low volume material feed," says Aleshire. "We adjust the air on our Krendl machine to blow at number 8, but we adjust the slide gate for the material feed to only one-eighth the normal rate used for cellulose." At the top of a wall cavity, Vic leaves a small air space, and compresses the beads using his hand or a stick. He then fills the last few inches of the cavity with two-part urethane spray foam

For more information, contact: Daniel Stewart, Energy Innovations, P.O. Box 1823, El Prado, NM 87529. Tel: (505) 776-8978; E-mail: stewart@taosnet.com

## NEW PRODUCTS

### Insulating Attic Hatches and Stairs

Even in new homes, attic access hatches and pull-down attic stairs are rarely well-insulated or equipped with adequate weatherstripping. Of course, many builders make their own attic access hatches by gluing rigid foam to plywood, or from pieces of structural insulated panels. For those looking for ready-made solutions to plug the attic-access energy hole, at least four manufacturers produce useful products.

#### Resource Conservation Technology's Access Hatch

Resource Conservation Technology sells a ready-made attic access hatch (\$165), including a finished frame, for installation in a rough opening measuring 22 3/4 by 44 1/4 inches. The panel has a 2-inch-thick core of expanded polystyrene (R-10), faced with hardboard on top and white plastic laminate on the bottom. The hatch includes foam weatherstripping and a multi-point latch that draws the hatch tight to the gasket.

#### The Attic Tent

A North Carolina company called Insulsure sells an insulating cover for pull-down attic stairs called the Attic Tent (see Figure 4). The Attic Tent is made of flexible 1/2-inch



Figure 4. The Attic Tent is a flexible insulating cover for pull-down attic stairs with an R-value of 3.2.

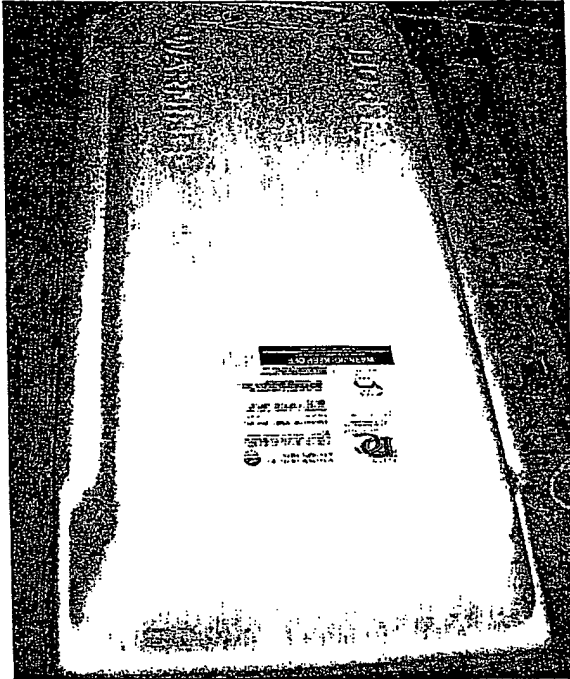


Figure 5. Designed to be installed on top of pull-down attic stairs, the Draft Cap is made of 2 1/4 -inch-thick expanded polystyrene with an R-value of 12.



Figure 6. The R-28 Energy Guardian costs more than the Draft Cap, but is stronger and provides a higher insulating value.

polyurethane foam covered with nylon fabric, and is installed by stapling a fabric flange to the top of the stair's rough opening. After stapling the unit in place, the seam can be caulked for increased air tightness. According to the manufacturer, the Attic Tent has an R-value of 3.2.

Insulsure contracted with Advanced Energy of Raleigh, North Carolina to study how the Attic Tent improved the air tightness of stair openings in five houses. According to a report by Advanced Energy's Arnie Katz, the air leakage through the attic stair openings before installation of the insulating covers varied from 71 to 159 cfm @ 50 pascals. With the Attic Tents installed, the air leakage dropped to a range of 49 to 53 cfm @ 50 pascals.

The Attic Tent comes in five different sizes: 22"x54"x7" (\$99.95), 25"x54"x7" (\$99.95), 22"x54"x13" (\$109.95), 25"x54"x13" (\$109.95), and 30"x60"x13" (\$119.95). In quantity, Attic Tents can be purchased from the manufacturer for as little as \$59.95 each.

#### The Draft Cap

Atticap Corporation makes a cover for pull-down attic stairs called the Draft Cap (\$100). Measuring 31 by 59 1/2 inches, with a height of 7 3/4 inches, the Draft Cap fits over a 25 1/2 by 54 inch rough opening (see Figure 5). The R-12 cap is made of 2 1/4 -inch-thick expanded polystyrene (1.5 pounds per cubic foot density). It is designed to sit on top of the attic floor joists or the attic subfloor, and is deep enough to accommodate most stairs, even if the attic joists are shallow 2x6s. According to the manufacturer, the Draft Cap is "not designed to bear weight."

#### The Energy Guardian

A company called Energy Sentry Solutions makes the Energy Guardian, an insulating cap that comes in a variety of sizes to fit over attic access hatches or pull-down stairs (see Figure 6). (The access hatch cap is a secondary cap that assumes the existence of a primary hatch below.) The Energy Guardian has more than twice the R-value of, and is significantly stronger than, the Draft Cap.

Each R-28 Energy Guardian cap comes with a polystyrene frame designed to be installed on top of the attic floor joists or attic subfloor; the cap has a rabbet that matches the frame, but no weatherstripping. The frame is assembled with double-sided tape, although most installers will probably want to seal the corners with caulk or expanding foam.

Both the cap and the frame are made of 6 1/4 -inch-thick high-density (2 pounds per cubic foot) expanded polystyrene finished with fire-retardant paint. The caps



come with rugged metal handles mounted on the bottom to make them easy to raise and lower.

The cap for access hatches comes in two sizes. The square cap (\$139) measures 38 by 38 inches (with an inside dimension of 32 by 32 inches), while the rectangular cap (\$135) measures 30 by 36 inches (inside, 24 by 30 inches). The cap for pull-down stairs (\$220) measures 36 by 66 inches (inside, 26 by 56 inches). The Energy Guardian is available from Energy Federation Inc.; large quantities can be ordered direct from the manufacturer, Energy Sentry Solutions.

For more information, contact:

Atticap Corporation, P.O. Box 51, Newton, MA 02464. Tel: (888) 292-2229; E-mail: paulp@draftcap.com; Web site: www.draftcap.com.

Energy Federation Incorporated (EFI), 40 Washington Street, Suite 3000, Westborough, MA 01581-1013. Tel: (800) 876-0660 or (508) 870-2277; Fax: (508) 870-9933; E-mail: info@efi.org; Web site: www.efi.org.

Energy Sentry Solutions, P.O. Box 400, Paoli, PA 19301. Tel: (610) 993-9585; Fax: (610) 640-1378; Web site: www.energysentrysolutions.com

Insulsure, P.O. Box 553, Mount Mourne, NC 28123. Tel: (877) 660-5640; E-mail: steve.williams@insulsure.com; Web site: www.insulsure.com.

Resource Conservation Technology, 2633 North Calvert Street, Baltimore, MD 21218. Tel: (410) 366-1146. E-mail: leejaslow@pondtechnology.com. The company has no Web site.

## Slow Rise Polyurethane Foam

Fomo Products, a manufacturer of two-component polyurethane foam, has introduced a new product, Handi-Foam Slow Rise, for use in enclosed cavity fill applications (see Figure 7). Fomo calls Slow Rise a "pour-in-place" foam to distinguish it from their conventional "spray-in-place" product.

Handi-Foam Slow Rise takes 60 to 90 seconds to rise and become tack-free. Although the product is intended for use in cavities, installing it in existing walls can be tricky. As the installation instructions warn, "There will be mold pressure exerted by any pour-in-place foam in nearly all applications. Therefore all molds need to be clamped or braced in some way."

Weatherization contractors interested in using Slow Rise will need to proceed with caution. According to Paul Hurry, a technical manager at Fomo, "The pressure exerted varies, but can be up to 5 psi. Most types of OSB and plywood should be strong enough to withstand the pressures exerted without perceptible bowing, but if the flow is obstructed or restricted, or if too much foam is used — what we call overpacking the cavity — then the foam will exert higher pressure, and that is when you can start popping things. I say 'imperceptible bowing,' but 'imperceptible' depends on who is perceiving it. With drywall, even a slight bow may be perceivable by some people, especially if the foam is installed in a wall cavity after the drywall is taped and mudded. You need to know the dimensions of the cavity that you're putting the foam into, and you need to know whether there are any obstructions. If you're unsure, you can put

more holes in the wall and make smaller fills. You start two feet from the bottom, let the foam rise up to the hole. It only takes a couple of minutes. Then you can move up to a hole two feet higher up the wall."

Peter Robinson, a sales representative for Great Northern Products in Exeter, New Hampshire, provides Slow Rise foam to weatherization contractors. "If you are spraying into cavities and you don't know what's there, you may need to be cautious," says

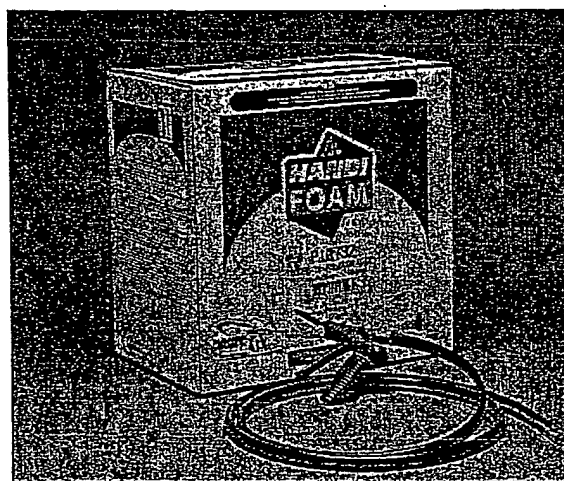


Figure 7 Handi-Foam Slow Rise is a two-component urethane foam designed to be poured into enclosed cavities. The foam expands fully within a minute and a half.

Robinson. "In an old building it's always a good idea to get an electrical fish wire and see what you have in the stud cavity before you spray the foam, to see if you have blocking or obstructions. You can also experiment someplace in a closet before you do a regular section of wall. It's best to be conservative."

According to Robinson, many SIP installers are switching from conventional two-component polyurethane foam to Slow Rise. When used to fill gaps between SIP panels, Slow Rise foam flows farther into hidden cavities than regular foam before it expands.

Handi-Foam Slow Rise costs between \$12 and \$21 a

cubic foot. It is available from J & R Products in three sizes: 7.6 cubic feet (\$160), 13 cubic feet (\$250), and 43.7 cubic feet (\$525).

For more information, contact:

J & R Products, 4695 East 200 North, Craigville, IN 46731. Tel: (800) 343-4446 or (219) 565-3600; Fax: (219) 565-3826; Web site: [www.jrproductsinc.com](http://www.jrproductsinc.com)  
Distributor of Handi-Foam.

Fomo Products, P.O. Box 1078, Norton, OH 44203. Tel: (800) 321-5585 or (330) 753-4585; Fax: (330) 753-5199; E-mail: [info@fomo.com](mailto:info@fomo.com); Web site: [www.fomo.com](http://www.fomo.com)

## INFORMATION RESOURCES

### Another Passive Solar Design Book

A book review in the May 2003 issue of *EDU* rashly declared that "the need for a good book on passive solar house design remains unmet." Rising to the challenge, Steven Winter sent *EDU* a copy of *The Passive Solar Design and Construction Handbook* for review (see Figure 8). Winter is the principal of Steven Winter Associates in Norwalk, Connecticut; his company is collectively credited with authoring the book.

*The Passive Solar Design and Construction Handbook* was originally published by Rodale Press in 1983; the current revised edition was published in 1997. (The book's mysterious inclusion of ten pages of graphics depicting every available type of concrete block stems from the fact that Steven Winters Associates' contract to write the book was partly sponsored by the National Concrete Masonry Association.)

#### High Ratios for South-Facing Glazing

Compared to the Daniel Chiras book reviewed in May, the Steven Winter book provides more of the theory and technical calculations underlying passive solar design, and might therefore prove more valuable to engineers. But not all of the book's technical recommendations are trustworthy. In the chapter on direct gain, the book includes a chart with recommended areas for south-facing glazing in a passive solar house. The chart advises that a house located in northern Vermont (44° north latitude, 20°F average December and January temperatures) should have a ratio of south-facing glazing to floor area of 29%. This figure is puzzling, since most passive solar designers recom-

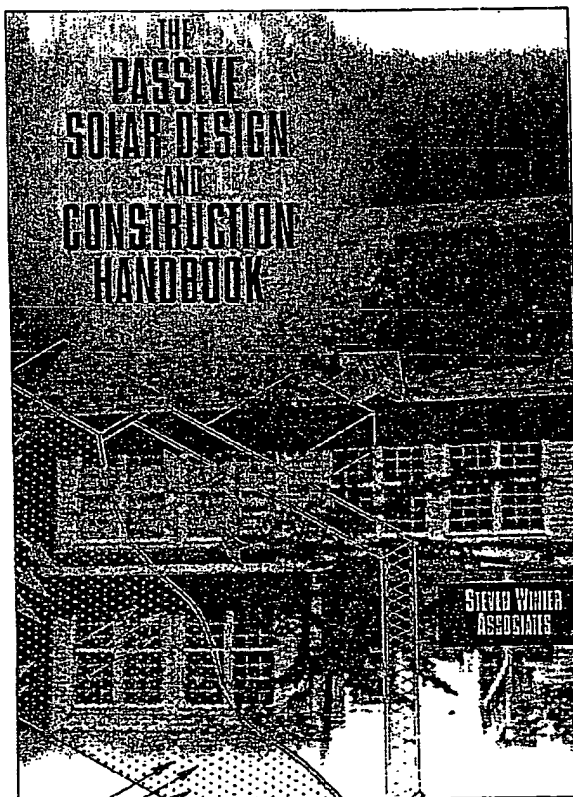


Figure 8. *The Passive Solar Design and Construction Handbook*, originally published in 1983, was revised and reissued by Steven Winter Associates in 1997.

mend a maximum ratio of 6% to 8% in a house with little thermal mass, or up to 14% to 16% in a house with substantial thermal mass. A designer using the Steven Winter ratio of 29% would end up with a house at grave risk of overheating.

### Decorating With Water-Filled Drums

*The Passive Solar Design and Construction Handbook* shows many signs of its early-80s origins. All of the book's 24 designs for passive solar houses are over two decades old. Of these 24 houses, 14 have sloped glazing, five include manually operated insulating shutters, four include rock beds for thermal storage, and seven include the use of exposed water-filled drums. Water-filled drums? It's enough to make a reader nostalgic for the Jimmy Carter years. "Nobody's installing water-filled drums anymore," said Andy Shapiro, a Montpelier, Vermont, energy consultant, in a recent interview. "For one thing, it takes a lot of space — about 4 square feet for each drum or stack of drums. That's expensive space to build. And people don't want to look at the things."

The old aphorism that "a passive solar house requires an active owner" was recently verified by Harrison Fraker, the dean at the College of Environmental Design at the University of California in Berkeley. Commenting on his design for one of the solar greenhouses included in the Steven Winter book, Fraker

noted, "The design depended on having an owner who understood how it worked, and who was willing to open and close the windows and curtains and vents at the right time."

As the consultants at Steven Winter Associates know well, building science has made great strides since 1983. Among the factors that have changed designers' approaches to passive solar design are improved techniques for superinsulation; the invention of the blower door, which provided clues to the importance of air sealing; better knowledge of the penalties of duct leakage; the development of improved types of glazing; and the increasing scarcity of homeowners willing to engage in the manual adjustment of shutters and vents. These factors, none of which are mentioned in *The Passive Solar Design and Construction Handbook*, have changed our understanding of the cost-effectiveness of such features as water-filled drums, rock bins, and manual night shutters. Most designers now realize that the money formerly invested in these features is better invested in improved insulation and air sealing.

*The Passive Solar Design and Construction Handbook* by Steven Winter Associates (ISBN #0-471-18308-3) is available for \$110 from John Wiley and Sons, 10475 Crosspoint Blvd., Indianapolis, IN 46256. Tel: (877) 762-2974; Fax: (800) 597-3299; E-mail: [customer@wiley.com](mailto:customer@wiley.com); Web site: [www.pfeiffer.com/WileyCDA](http://www.pfeiffer.com/WileyCDA).

## READERS' FORUM

### "Wet-Spray" Is a No-No

Dear Editor:

Recently I have noticed that *EDU* uses the term "wet-spray" to refer to spray-applied cellulose. It is true that many years ago, cellulose insulation was installed wet because of commonly held perceptions on technique and because of rather unadapted product and equipment. But today, "wet" is an inaccurate description. The installed product is better described as moist. We respectfully request that future *EDU* articles referencing spray-applied cellulose insulation not be referred to with the words "wet-spray."

[Edited for length]

Matthew J. Adams  
Applegate Insulation  
Webberville, Michigan

Dear Editor:

Matthew Adams sent me a copy of his letter to you regarding the use of the term "wet spray cellulose," and I have to say that I agree with his comments. I would like to join Matthew in requesting that the words "wet spray cellulose" be henceforth banned from the pages of *EDU*.

[Edited for length]

Daniel Lea, executive director  
Cellulose Insulation Manufacturers Association  
Dayton, Ohio

### Editor's Reply

The letters from Matthew Adams and Daniel Leas are puzzling, since a word search of back issues shows that *EDU* has not used the term "wet-spray" in reference to cellulose since February 1998, when *EDU* directly quoted a builder who used the term. In recent years, *EDU* has occasionally referred to spray-applied cellulose as a "damp-spray" product, a description which seems fairly close in meaning to Adams's preferred term, "moist."

## BACK PAGE

### "Insulating" Paint Lives On

Over the years, many "miracle" energy-saving products have been promoted to homeowners. Among the most persistent such products are "insulating" paint and its cousin, ceramic beads (see "Still No Help for Ceramic Beads," *EDU*, November 2000, and "Fantasy Rerun of the Month," *EDU*, January 1997). A Vero Beach, Florida, company called Insuladd is among the latest generation of companies touting the virtues of ceramic beads to homeowners.

As *EDU* has reported for years, ordinary white paints (and other paints with high solar reflectance), by lowering the temperature of surfaces to which they are applied, can reduce air conditioning bills in some buildings, especially poorly insulated buildings. But no paint yet invented can significantly increase a wall's R-value.

Nevertheless, Insuladd's promoters, undeterred by facts, describe their product as "the paint additive that insulates." The company has coined an undefined phrase, "insulation equivalencies," which it uses to

promote a fictitious R-value for its paint. According to Insuladd, "The performance of Insuladd when mixed with a light-colored house paint can be expected to parallel the R-20 (radiant) and R-5 (passive) insulation equivalencies documented by commercially available insulating coatings" — whatever that means. These "insulation equivalency" calculations embolden the company to declare that their paints "achieve a very high insulation value." Not convinced yet? Maybe this will entice you: "Insuladd insulating additives and Insuladd insulating house paints can reduce utility bills by 40%!"

Hidden among these deceptive claims is one that rings true: Insuladd paint "looks and applies just like ordinary house paint." For more information, check out the Web pages of Insuladd ([www.insuladd.com](http://www.insuladd.com)) and Energy Savers of America ([www2.cajun.net/~mrfoil/esainsuladd1.html](http://www2.cajun.net/~mrfoil/esainsuladd1.html)).

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Exhibit H

Blower Door Test/Building Tightness/Chimney Safety TestHouse Information

Job#

3237

Date:

7/3/02

Job Name

Rodgers

Town

Prospect ParkBlower Door Test: Yes ☒ No: Give Reason:# of conditioned stories: 2

Volume:

15,200Basement Included: Yes ☒ No ☒

Surface Area:

2325Type Model: Minps. #2 ☒ #3

Exposed

Normal ☒ Shielded

Method Used for CFM50:

Type of structure:

Frm Single☒ Computer ☐ Graph/ direct read

PRE TEST (CFM50):

4931

Tester:

TH

Describe conditions and large air leakages:

TRAP door AREA

Number of occupants:

4

Other MVG adjustments

Number of smokers:

1

Total MVG adjustment

1750

POST TEST at CFM50:

3501

Tester:

ECN

Describe minor air sealing performed:

base boards, window + door frames, entrance doorsTrap door energy (quick)

This section is to be performed after all weatherization work is completed

Chimney safety test: Outside Temp. 90 Exhaust devices activated YFurnace fan activated: yes ☐ no ☐ n/a ☒

Spillage: Heater

ADHW other: ☐

Draft(iwc/pascals): Primary Heater

05

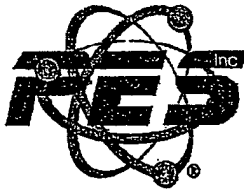
DHW

Other ☐Are there any negative pressure exist in the area of the combustion appliance zone while a forced air distribution system fan is operating: Yes ☐ No ☒

COMMENTS:

Boiler

Exhibit I

[Home](#)[Up](#)[Energy Shield II Photos](#)

**Progressive Energy Solutions, Inc.**  
Light Years Ahead.

YOUR  
**LOWER**  
BUSINESS + RESIDENTIAL  
ENERGY  
BILL

[Energy Shield I Pictures & Info](#)

[Energy Shield II Pictures & Info](#)

[Energy Shield I & II Installations](#)

## Energy Shield I™ (Patent Pending)

*This attic access pull-down ladder has R-13 insulation installed between the steps and is mashed in places which degrades the R-value to considerably less than R-13. The outside edges do not have any insulation around the edges. There is no way to seal this unit or prevent radiant heat from penetrating the access door.*



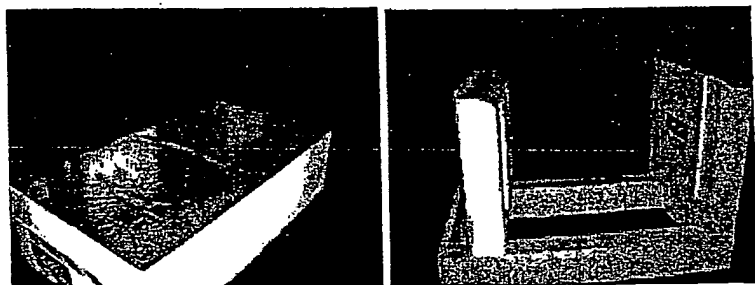
Business Partner



Rebuild America  
U.S. Dept. of Energy

This is the *Energy Shield I™* unit which is capable of sealing the entire opening with a R-32 Value and a radiant barrier that is 98% reflective. The lid comes in two pieces for easy handling and storage. The attic entrance end piece is removable to facilitate movement into and out of the attic.

Which one do you think is more effective?



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Last modified: 12/06/04



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Light Years Ahead

YOUR  
BUSINESS & RESIDENTIAL  
**LOWER**  
BILL

[Energy Shield I Pictures & Info](#)

[Energy Shield II Pictures & Info](#)

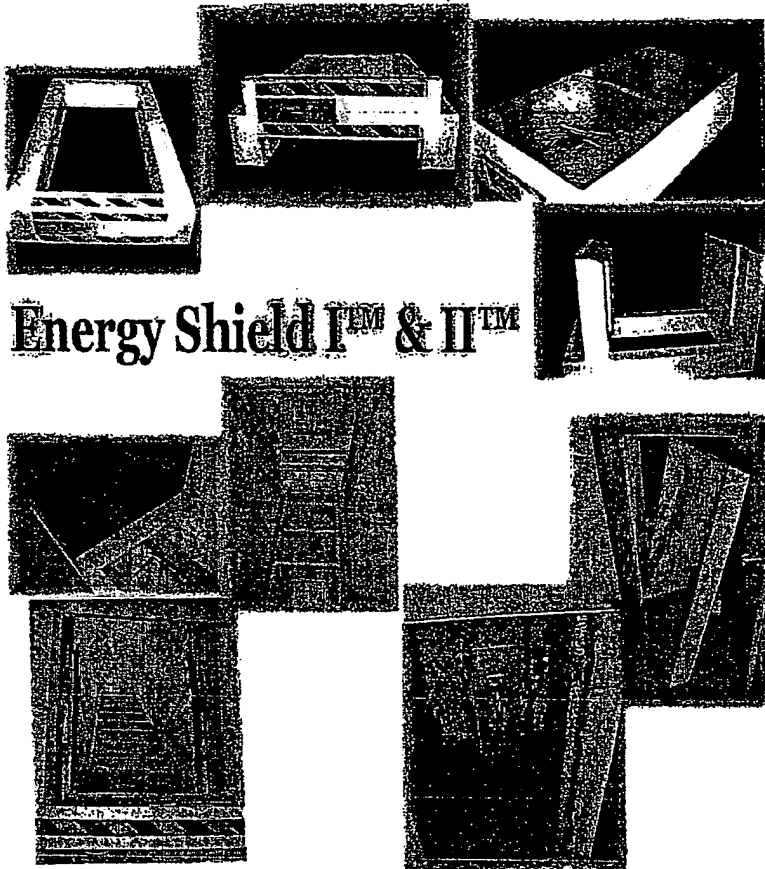
[Energy Shield I & II Installations](#)



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U.S. Dept. of Energy



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Last modified: 12/06/04

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:  
James B. Melesky

Appln. No. 10/024,478

Filed: 21 December 2001

For: INSULATION COVER FOR ATTIC  
CLOSURES

Art Unit: 3637

Examiner: A. Phi Dieu Tran

Docket No.: 82/1376US  
Formerly: 13811

Commissioner for Patents  
Alexandria, VA 22313

**Supplemental Rule 132 Declaration**  
**(Secondary Considerations of Non-obviousness)**

Being of legal age, I, James B. Melesky, declare and state as follows:

- 1) This declaration is to provide additional material to establish secondary considerations of non-obviousness in the above referenced application and is supplemental to the Rule 132 Declaration previously filed in this case on July 27, 2005.
- 2) I am the inventor of the above referenced application and familiar with its disclosure and claims. I am also the President of ESS Energy Products, Inc (f/k/a Energy Sentry Solutions, Inc.) which manufactures and sells a device under the Trademark "The Energy Guardian." I am familiar with the design of The Energy Guardian™.
- 3) I have reviewed claim 14 of the above referenced application, as amended, and believe that The Energy Guardian™ still embodies the elements of that claim as currently amended.
- 4) I have attached hereto additional exhibits demonstrating the perspective of persons knowledgeable in the art, who believe the invention to be an innovative step beyond the prior art solving a long-felt need in industry and which show commercial success of the product from use by those in the industry. This evidenced perspective is indicative of the non-obviousness of my invention.
- 5) This additional exhibit is provided to supplement the previously provided exhibits, which are believed to still be indicative of non-obviousness of the invention for the reasons previously discussed.

- 6) I have attached hereto as Exhibit J a copy of an letter I received on September 12, 2005 from Tom Donofrio of Builders Prime Window and Supply Co., Inc. The letter states:
- a) The Energy Guardian™ has specific benefits for ease of use due to its two piece design.
  - b) That single piece designs, or two piece designs where the pieces are attached, are "unwieldy."
  - c) That designs with hinged lids are unsuitable for many homes as the lid will hit the rafters and not be able to fully open. This is specifically referred to as a "fatal flaw" of hinged lid designs.
  - d) That the air seal provided by how the lip fits into the frame of The Energy Guardian™ is "far superior" to that in other products.
- 7) I have attached as Exhibit K a letter I received on December 21, 2005 from George Temme of Honeywell DMC Services, Inc., a business unit of Honeywell International Inc. The Letter States:
- a) His company is the sub contractor providing energy saving measures for the New Jersey Comfort Partners low income energy conservation program.
  - b) This program is sponsored by all 7 utility companies in the state of New Jersey; under the auspices of the state Board of Public Utilities.
  - c) Products used in this program are subject to stringent standards of performance.
  - d) *The Energy Guardian™ Kit* is the primary solution for solving the problem of attic sealing as it is a "clearly superior" product.
- 8) I also wish to recognize that the letter from Vic Alshire, previously provided as Exhibit E to my prior declaration also states:
- a) Mr. Alshire has reviewed or used virtually every energy saving product and procedure available.
  - b) Mr. Alshire states it is his professional opinion, that "there has never been a product to properly insulate and seal these attic accesses until the Energy Guardian."
  - c) Mr. Alshire further states that *The Energy Guardian™ Kits* "should be used as a national standard."

- 9) I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

12/22/05  
Date

  
James B. Melesky  
Inventor of U.S. Patent App. Ser. No. 10/024,478

**Exhibit J**

## **BUILDERS PRIME**

### **WINDOW & SUPPLY CO.**

September 12, 2005

Mr. James B. Melesky  
President  
ESS Energy Products, Inc.  
P.O. Box 400  
Paoli, PA 19301

Dear Jim:

Our firm installs windows and doors in thousands of homes in the Philadelphia area every year. These homes are a combination of both new construction and upgrades to existing houses. Comfort, energy efficiency, durability and ease of use are essential elements of any product that we offer to our clients.

When I learned of your product, I knew from my personal knowledge and experience that it made great sense. I even purchased *The Energy Guardian*™ kit for the pull down ladder in my own home.

I installed the unit in late summer. It has made a big difference in the comfort on the entire 2<sup>nd</sup> floor. In the winter my step son's bedroom was always chilly, but not anymore. It is warmer and the drafts are gone. In the summer, the upstairs is much cooler with the "Guardian." It really works!

We use our attic for storage. There is not much room to maneuver in our attic as is the case with many, many other attics. That is where the design of your products is so practical. The two part design makes it easy for anyone in my family to use. Each piece is light. We can place the lid and frame to the side separately when moving boxes and other such items into or out of the attic. It is easy to return them when we are done.

Other products that are one solid unit or two units attached do not make sense. First, it is too unwieldy for my wife or anyone else's to move and there is no room to put such a big unit in my attic and most others. I wouldn't be able to use or recommend products with a hinged lid either. The lid would not be able to fully open as it would hit the rafters in many homes. That is a very important safety and clearance matter and it is a fatal flaw in any design.

It is really important how the lip of the lid fits into the frame. That air seal is far superior to a gasket or light weather stripping that is used in other products. I can imagine the effect of dragging luggage or a box over it a few times- it couldn't last. Your units can clearly last a long time even when used often.

With the practical approach you have with your products and the great results, I can confidently sell them to homeowners and contractors. I know that the product works well and will fit into virtually any home. That way, I don't have to worry about returns.

I recommend *The Energy Guardian* kits to everyone.

Sincerely,



(610) 277-8050 • P.O. Box 70 • 2nd & Merion Streets • Bridgeport, PA 19405 • Fax (610) 277-2549

**Exhibit K**



Honeywell DMC Services Inc.

5 East Stow Road Ste E

Marlton, NJ 08053

856 797-0011

856 797-0244 Fax

December 20, 2005

Mr. James B. Melesky  
President  
ESS Energy Products, Inc.  
P.O. Box 400  
Paoli, PA 19301

Dear Jim:

As we close out another successful year, I want to congratulate your firm for the important role it has played in our program.

As you know, we are the sub contractor for the New Jersey Comfort Partners low income energy conservation program sponsored by all the utility companies in the state of New Jersey, under the auspices of the state Board of Public Utilities. We provide a number of upgrades and energy saving measures for thousands of their clients every year throughout the state according to guidelines and procedures mandated by all 7 utility companies in the state.

Our products and measures must meet or exceed stringent standards and our work is subject to review and inspection by third parties.

We use *The Energy Guardian™ Kits* as our primary solution for the program in New Jersey because it is clearly the superior product available in the market today. It is the best solution for our crews, the utility companies and the homeowners.

I look forward to continuing our winning combination with ESS in the coming year.

Yours truly,

A handwritten signature in cursive script, reading "George Temme", is located below the "Yours truly," text.

George Temme  
Inventory Coordinator



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	:	
James B. Melesky	:	
	:	
Appln. No. 10/024,478	:	Art Unit: 3637
	:	
Filed: 21 December 2001	:	Examiner: A. Phi Dieu Tran
	:	
For: INSULATION COVER FOR ATTIC CLOSURES	:	Docket No.: 82/1376US
	:	Formerly: 13811

Commissioner for Patents  
Alexandria, VA 22313

**Additional Supplemental Rule 132 Declaration**  
**(Secondary Considerations of Non-obviousness)**

Being of legal age, I, James B. Melesky, declare and state as follows:

- 1) This declaration is to provide additional material to establish secondary considerations of non-obviousness in the above referenced application and is an additional supplement to the Rule 132 Declarations previously filed in this case on July 27, 2005 and January 31, 2006.
- 2) I am the inventor of the above referenced application and familiar with its disclosure and claims. I am also the President of ESS Energy Products, Inc (f/k/a Energy Sentry Solutions, Inc.) which manufactures and sells a device under the Trademark "The Energy Guardian." I am familiar with the design of The Energy Guardian®.
- 3) I have reviewed claim 14 of the above referenced application, as amended, and believe that The Energy Guardian® embodies the elements of that claim as currently amended.
- 4) I have attached hereto additional exhibits demonstrating the perspective of persons knowledgeable and experienced in the art, and nationally recognized, who unequivocally state the invention is an innovative step beyond the prior art solving a long-felt need in industry and which show commercial success of the product from use by those in the industry. This evidenced perspective is indicative of the non-obviousness of my invention.

- 5) These additional exhibits are provided to supplement the previously provided exhibits, which are believed to still be indicative of non-obviousness of the invention for the reasons previously discussed.
- 6) I have attached hereto as Exhibit L a printout from the U.S. Department of Energy detailing the success of the Weatherization Assistance Program in reducing energy bills through energy efficiency.
  - a) The Energy Guardian® Kits have been used as an integral part of weatherization training for a number of agencies in the Weatherization Assistance Program, as set forth in Exhibit E.
- 7) I have attached hereto as Exhibit M a letter I received from Doug Rye of Doug Rye & Associates, Inc.
  - a) Mr. Rye has worked for over 35 years in helping homeowners lower their utility bills.
  - b) Mr. Rye states that The Energy Guardian® Kits "have set a national standard."
- 8) I have attached hereto as Exhibit N the Energy Services Bulletin on the U.S. Department of Energy's webpage listing the knowledge and expertise of Doug Rye in the field of energy efficiency. The article further refers to Doug Rye as maybe "the best-known residential energy consultant in the nation."
- 9) I have attached hereto as Exhibit O a letter published in Home Energy Magazine from Mark Ternes, a scientist at the Buildings Technology Center at Oak Ridge National Laboratory.
  - a) Mr. Ternes expresses his doubts and skepticism of the cost-effectiveness and efficiency in light of assumed structural limitations and premium pricing of The Energy Guardian®.
  - b) Mr. Ternes further estimates a reduction in the air leakage rate of the home through the use of any air sealing product to be only 100 CFM for the attic ladder cover and specifically expresses doubt that The Energy Guardian® would be cost-effective with such a minimal reduction.
- 10) I have attached hereto as Exhibit P various Blower Door Readings and Tests and Pressure Diagnostics performed before and after installation of The Energy Guardian® evidencing an average reduction in air leakage rate for at least six weatherization agencies, part of the federally funded weatherization program, of at least 500 CFM50 and

as much as 1400 CFM50 for attic ladder covers and 150-500CFM50 for attic push up panels.

a) These agencies must use highly calibrated blower door devices so as to produce consistent results which comport with strict federal standards.

- 11) I have attached hereto as Exhibit Q a letter I received from Fran Rice, an Energy Services Coordinator at Tompkins Community Action, which is a federally sponsored Weatherization Assistance Program agency.

a) Mr. Rice states that other products may have made improvements, but "didn't come close to solving the problem like" The Energy Guardian® did, and none of them met Tompkins Community Action's standards.

b) Mr. Rice states that The Energy Guardian® Kits meet their standards because the "air-sealing qualities ... are great."

c) Mr. Rice describes the practical advantages generated by the claimed structure, specifically by the fact that "the lid of your kits fits right into the frame without any hooks or other devices to secure the air seal."

- 12) I have attached hereto as Exhibit R a letter I received from Marlene W. Barbour, the Weatherization Manager at Atlantic Human Resources, Inc, which is a federally sponsored Weatherization Assistance Program agency.

a) Ms. Barbour describes the agency as dedicated to decreasing energy costs for low income families.

b) Ms. Barbour states that The Energy Guardian® is superior to their own products because of the ease of use and the quality of the heavy duty air seal "created by the lid sliding into a frame."

- 13) I have attached hereto as Exhibit S an email from a pleased homeowner who recently had The Energy Guardian® installed.

a) She explained how thrilled she was the product and glad she chose it "instead of the attic door [she] was considering. You pay for what you get."

- 14) I have attached hereto as Exhibit T an email I received from Jim Donovan at CBS3, a Philadelphia CBS affiliate. The CBS consumer report featured a segment on The Energy Guardian®.

- a) The segment received a rating of 4.7, or roughly 139,000 viewers, a "very good" rating, illustrating general consumer interest and prospective market share.
- 15) I have attached hereto as Exhibit U an email I received from Pam Bader, a potential customer.
- a) Ms. Bader explains that she came to hear of the product by word of mouth, an example of how sales for The Energy Guardian® are made.
- 16) I have attached hereto as Exhibit V an email I received from John Ohm, a private contractor who does work for low income programs that are federally funded through the Weatherization Assistance Program.
- a) Mr. Ohm has informed me that he so prefers The Energy Guardian® that he will install it even when the programs do not pay the premium price, because he believes it is so much better for the homeowner.
- 17) I have attached hereto as Exhibit W an email I received from Sandie Stanzione, a recent customer.
- a) Ms. Stanzione explained how happy she has been with *The Energy Guardian* and suggested it to others as well. This exemplifies the word-of-mouth advertising responsible for much of *The Energy Guardian's* commercial success.
- 18) I have attached hereto as Exhibit X my electric bills evidencing the energy savings since I installed The Energy Guardian®.
- 19) I have attached hereto as Exhibit Y an email I received from Wayne Raffety, a recent customer, who stressed his satisfaction and the dramatic improvement with the installation of The Energy Guardian®. Mr. Raffety further explained that the product is so effective that additional reinsulation is needed to equally distribute the captured heat.
- 20) I have attached hereto as Exhibit Z an email I received from Dan Pourreau, a recently satisfied customer. Mr. Pourreau attached a copy of his gas bill, showing a decrease of 0.8 Ccf/day from the previous year, and after installation of The Energy Guardian®, despite a colder winter and the addition of a finished basement. He reported an estimated savings of \$189 in one month due to The Energy Guardian®.

- 21) I have attached hereto as Exhibit AA an email I received from Brian Dietrich, a recently satisfied customer, citing a noticeable improvement and a "huge difference" with the installation of The Energy Guardian®.
- 22) I have attached hereto as Exhibit BB further elaboration by Mr. Dietrich of Exhibit AA.
- 23) I have attached hereto as Exhibit CC an email I received from Linda Copeland at Progressive Energy Solutions, Inc. explaining how she recently installed The Energy Guardian® and that "it works!"
- 24) I have attached hereto as Exhibit DD an email I received from Jeff Stell, a recent customer. Mr. Stell found that there was a "NOTICEABLE difference in room temperature" and plans to recommend The Energy Guardian® to friends.
- 25) I have attached hereto as Exhibit EE a letter I received from Vic Aleshire, President of the Comfort Company.
  - a) Mr. Aleshire has worked in the residential energy conservation business for over 25 years, including speeches at national conferences, intimate involvement with the Department of Energy's Weatherization Assistance Program, and collaboration with Oak Ridge Laboratory scientists.
  - b) Mr. Aleshire stated that the results obtained with The Energy Guardian® "were far greater than any alternative either commercially available or individually constructed."
  - c) Mr. Aleshire expresses his own previous skepticism, along with the skepticism of the Oak Ridge scientists. He explains that the most respected scientists at Oak Ridge "consistently posit that no more than a 50 CFM50 reduction for hatches and a 100-200 CFM50 reduction for pull down ladders are achievable with any kit or constructed measure."
  - d) Mr. Aleshire explains that despite the previous skepticism, they have consistently recorded 200-400 CFM50 reductions for attics with hatches and 600-900 CFM50 reductions for attics with pull down ladders.
  - e) Mr. Aleshire also relates the zero smoke stick reading achieved while using The Energy Guardian®, which illustrates excellent and surprising air sealing properties.
- 26) I have attached hereto as Exhibit FF invoices to several state programs and/or state contractors showing their use of The Energy Guardian®,

as well as a letter from Joe Wehrhahn, President of NJ-ALPHI, an association of home inspectors for the entire state of New Jersey documenting state government purchase and acceptance of The Energy Guardian®.

a) These invoices and letter indicate acceptance by a number of state government programs of The Energy Guardian® as a valuable product to be used in their states and success of the product in market penetration outside of the local area.

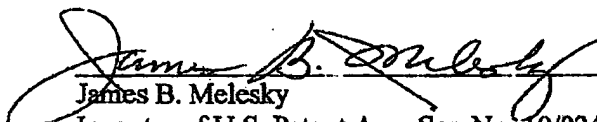
b) These invoices do not show every sale of The Energy Guardian®, but are just a small sampling provided to show distribution.

27) I have attached hereto as Exhibit GG printouts from the website for The Energy Guardian®.

a) The website depicts my claimed frame and removable closure member in The Energy Guardian®.

28) I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

7-16-07  
Date

  
James B. Melesky  
Inventor of U.S. Patent App. Ser. No. 10/024,478

## Exhibit L

## U.S. Department of Energy - Energy Efficiency and Renewable Energy Weatherization Assistance Program



The Weatherization Assistance Program enables low-income families to permanently reduce their energy bills by making their homes more energy efficient. It is this country's longest running, and perhaps most successful energy efficiency program. During the last 30 years, the U.S. Department of Energy's (DOE) Weatherization Assistance Program has provided weatherization services to more than 5.5 million low-income families.

By reducing the energy bills of low-income families instead of offering aid, weatherization reduces dependency and liberates these funds for spending on more pressing family issues. On average, weatherization reduces heating bills by 31% and overall energy bills by \$358 per year at current prices. This spending, in turn, spurs low-income communities toward job growth and economic development.

Oak Ridge National Laboratory gives technical support and evaluations.



The Weatherization Assistance Program Technical Assistance Center provides guidance for program operations and fosters community partnerships to advance weatherization.



[Webmaster](#) | [Security & Privacy](#)  
[Weatherization & Intergovernmental Program Home](#) | [EERE Home](#)

U.S. Department of Energy

Content Last Updated: July 6, 2006



## Exhibit M

# RYE

Doug Rye & Associates, Inc.  
6020 Riviera Dr., Benton, AR 72019  
501-653-7931

April 4, 2007

Mr. James B. Melesky  
President  
BSS Energy Products  
P.O. Box 400  
Paoli, PA 19301

Dear Jim:

Over the last 35 years, I have helped countless homeowners lower their utility bills. As the cost of home energy continues to rise, this issue is now taking center stage across the USA.

Unfortunately, most folks start out with the idea that they need to spend a lot of money to save on their home energy bills. Though my radio show, seminars, and articles that reach homeowners in many states, I explain every day how that is not true. There are a number of inexpensive, common sense ways to lower utility bills. Saving energy in this way makes money for homeowners.

The *Energy Guardian Kits* are a perfect example of this tried and true strategy. They stop one of the most overlooked sources of energy loss in most homes - the attic entrance. Most attic entrances are energy hogs in both hot and cold weather. They often make rooms several degrees colder in the winter and hotter in the summer. They are also comfort hogs. Left unimproved, this hog can even lead to expensive mold and roof damage.

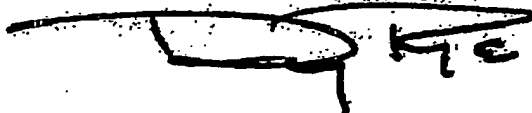
Your kits are an important fire safety measure. Because the attic entrance is often near or even in a bedroom, it probably creates the most common need for space heaters. The National Fire Protection Association recently reported that space heaters accounted for about 19,000 injuries requiring emergency room treatment, nearly 200 deaths and \$250 million in property damage in one year.

In short, *The Energy Guardian Kits* are an essential component for any home for several important reasons. They also just make just good common sense and have a short payback period.

With your kits, homeowners stop feeding that big energy hog as soon as they are installed, not to mention that the home is safer and more comfortable.

The *Energy Guardian Kits* have set a national standard. I recommend your products to every homeowner that lives where it is hot or cold which is just about everyone. Any agency or program that provides energy saving advice should use these kits.

Yours truly,



## Exhibit N

## Energy Services BULLETIN

[Print-friendly version](#)

## In this Issue

- [Energy Services Bulletin home page](#)
- [Rochester Public Utility enlists partners to study fuel cell uses](#)
- [Ark Valley and Touchstone Energy bring Caulk and Talk to local radio](#)
- [Solar power lights up East Grand Forks bike path](#)
- [Wind plus compressed air equals efficient energy storage in Iowa proposal](#)
- [Solar-covered parking generates energy, rewards public transit riders](#)
- [Energy Star honors two Partners of the Year in Western territory](#)
- [Gunnison County pioneers new efficiency incentives](#)
- [Mesa, Ariz., uses grants to investigate distributed, renewable energy](#)
- [Western offers green products to Federal agencies](#)
- [MCAS Yuma wins Western award with aggressive conservation plan](#)
- [Topics from the Power Line ASHRAE heating/cooling standards balance efficiency and comfort](#)
- [Energy Shorts](#)
- [Equipment Loan Program news](#)

## Architect turns passion for conservation into radio show

Doug Rye may be the best-known residential energy consultant in the nation. Since 1990, his weekly "Home Remedies" radio show has provided practical insight into construction ideas and energy efficiency. Troufon Radio Network, a division of [Heathcott Associates](#), distributes the program throughout the United States.

Rye received a bachelor's degree in architecture from the University of Arkansas at Fayetteville and spent 30 years with the Farmers Home Administration as the Arkansas state architect. It was at the FHA that Rye pioneered housing designs that incorporated energy-efficient building practices and geothermal heating and cooling systems.

Upon retiring from the FHA, Rye launched a second career—he helps homeowners and contractors across the country build and remodel homes and other buildings designed for maximum energy efficiency. His techniques include the use of cellulose insulation, geothermal heat pumps and energy-efficient hot water heaters. The combination of these measures and Rye's expertise has helped people nationwide in developing the most energy-efficient structures possible.

In addition to offering individualized consultation, Rye keeps a busy speaking schedule, presenting more than 150 seminars each year to utility groups, contractors and other professionals. His 2002 engagements included a presentation at the [Delta-Montrose Electric Association](#) Energy Expo. DMEA, a Western customer, sponsors "Home Remedies" on [KNZZ-AM radio](#) News Radio in Grand Junction, Colo., Saturdays at 8 a.m.



Volume 22, Number 4,  
August 2003

## Related articles

- [Ark Valley and Touchstone bring King of Caulk and Talk to local radio](#)

## Resources

- [Heathcott Associates](#)
- [Delta-Montrose Electric Association](#)
- [KNZZ-AM radio](#)

## People

- [Gary Heathcott, president of Heathcott Associates](#)

Submit a story  
idea

Equipment loan  
program

Technical  
questions

## Exhibit O

----- Original Message -----

From: Jim Gunshinan

To: Jim Melesky

Sent: Wednesday, June 13, 2007 2:01 PM

Subject: Letter to the Editor

Good hearing from you Jim.

I found the letter you asked about pretty quickly. It was published in the July/August 2005 issue. Here it is, with your response:

#### Disputed Findings

I agree with several of Jim Melesky's points in his article on attic accesses ("Attic Accesses: High Priority or No Big Deal?" Mar/Apr '05, p.16)—namely, that attic accesses located inside the conditioned space of the house should be insulated and air sealed in a manner durable enough to last 12 years or more. However, I disagree with some of his calculations.

In calculating the average R-value of an R-38 attic with uninsulated pulldown stairs, Melesky uses just the R-value of 1/4-inch plywood for the pull-down stair without considering the film coefficients on either side of the plywood. Doing so would increase the average or effective R-value of the R-38 attic from his calculated value of 17.1 to about 30, which presents a much less ominous situation.

I also question his assertions that \$250 spent to upgrade a pull-down ladder will result in an SIR of 6.28, or that an expenditure of \$150 to insulate a pop-up hatch has an SIR of 3.71. These figures imply annual savings of about \$106 and \$37, respectively, assuming a 20-year lifetime and a uniform present value factor based on a 3% discount rate.

I performed my own check on these projected savings using DOE's National Energy Audit (NEAT), which is used by many states within DOE's Weatherization Assistance program. For a one-story house located in St. Louis, assuming the same fuel costs reported in the article, I estimated a total annual savings of \$14 from upgrading an attic pulldown stair; a savings of \$5 from adding R-38 insulation to 10 ft<sup>2</sup> of uninsulated attic area (the typical area of a pulldown stair); and a savings of \$9 from air sealing that effectively reduces the air leakage rate of the home by 100 CFM measured at 50 Pa (a reasonable estimate of the impact from air sealing an existing pull-down stair that is in poor condition). Furthermore, I estimated total annual savings of just \$27 for a house located in International Falls, Minnesota.

Based on my calculations, I must conclude that Melesky's savings estimates are overly optimistic, even for the worst-case condition implied in the article (40 square inches of leakage area) and if one assumes a severe climate like International Falls. Exaggerated claims can lead to lower-than-expected energy savings, uneconomical use of weatherization funds, and ultimately to mistrust and confusion on the part of the client population we strive to serve.

Do my calculations indicate that attic accesses should not be addressed? No! Assuming 15-year lifetimes for both the added insulation and the air sealing work, my calculations imply that up to about \$167 could be spent cost-effectively on labor and materials to upgrade an attic pull-down stair in St. Louis—less if the existing air leakage gaps are not that bad, but more in a more severe climate or if the durability of the measure could extend the lifetimes to 20 years. The challenge for the industry is to develop an attic pulldown stairway product that can be purchased and installed for these costs and that will perform for 15-20 years.

Mark Ternes  
Buildings Technology Center  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee

*Author Jim Melesky responds:*

*The crux of Mark's disagreement with what I wrote in the article is about what the justifiable dollar amount should be to insulate and seal an attic access. In his letter, Mark concluded that \$167 is a justifiable amount for a pull down ladder, while I indicated that \$250 was the right amount. I will first explain how he actually agrees with my numbers using his own assumptions and then show how some of his assumptions dramatically understate the actual energy savings.*

*Mark calculates that the annual savings of this improvement should be approximately \$14/year. Over a 12-year period, this would save the homeowner about \$168. If we take the annual savings and extend it to at least 15 years as he suggested, then the savings would justify a solution of \$210. His challenge to make a product that will last 20 years justifies a \$280 amount for the upgrade. I agree with this standard and I know that there is at least one product available today with a 20 year warranty. Therefore, a \$250 investment is easily justified to insulate and seal an attic ladder if the upgrade is based on Mark's assumptions and recommendation.*

*While I disagree with his calculation of effective R-value, the matter is not yet clear. I agree that there is an increase in R-value on plywood due to the film coefficient. However, in the case of attic accesses, there is also significant air leakage. This allows air flow between the attic and the living area, particularly during the hot and cold weather periods. The air flow affects the film coefficient. I pursued the matter with the thermodynamic departments of some highly prestigious colleges. While there was agreement that air leakage would decrease the R-value due to the film coefficient, there were differing views on the precise effect. I have requested that this be the subject of further research by their students so that an unbiased source could develop accurate data. Even though the matter is not resolved, I used Mark's assumptions for effective R-value in analyzing savings due to an attic hatch retrofit in order to determine the most conservative results.*

*The assumptions Mark made about the cost of fuel and the amount of air leakage around attic accesses caused him to understate the savings from a retrofit. I used heating costs of \$1.20 per gallon of fuel oil in my analysis, while the cost of heating fuel had steadily risen to \$2 per gallon by the time Mark's letter was written. That represents a more than a 66% increase in the cost of fuel. It is clear that my calculations dramatically understate what the energy savings would actually be for this critical component of the SIR calculation. In addition, I didn't project an increase in the cost of fuel for the period of projected savings. If we look back over the past 20 years, the cost of fuel has increased dramatically. I can find no projections that indicate fuel costs will decrease or remain flat for the next 20 years. Using a cost of fuel of only \$1.80 per gallon, which is still far below current market prices, Mark's model indicates cost savings of \$400 for a pull down ladder retrofit. If we assume that the discount rate is approximately equal to the rate of increase in the cost of fuel, a \$250 upgrade produces an SIR of approximately 1.6. An SIR of 1.8 would result at a cost for fuel of \$2 per gallon.*

*I disagree with Mark when he states that a 100 CFM50 air leak in a one-story home due to a pull down stairs in poor condition is a reasonable estimate. He provides no reference or basis for this assertion. I find this to be an unrealistically low reading. A number of our weatherization clients have provided my firm with actual blower door test results from a number of homes with various sizes and designs in a number of different states. They typically record reductions in air leakage that range from 500 to 1,500 CFM50 for a properly upgraded pull down ladder. If we use only a 250 CFM50 reduction (but still use all of Mark's other assumptions) with a cost of heating fuel of \$1.80 per gallon, than the annual savings would be \$38 and the SIR would be 3. At \$2 per gallon, the annual savings will be \$42, and the SIR will be 3.3.*

*I also disagree with Mark that 40 square inches of air leakage is a worst-case condition. As any pull down ladder is used, the plywood will warp over time where the ladder is pulled down. In the worstcase environment, air gaps for the ladder opening will far exceed 40 square inches. I determined the air leakage I used in an example in my article by measuring the actual air gaps that exist in what I believe is a typical pull down ladder. The data I used in the article was entered into TREAT software, which, like NEAT, is also a DOE-approved modeling program. TREAT allows for the use of air leak reduction or measured air gaps.*

*While I strongly disagree with some of Mark's conclusions, I do not question his intentions. I think he simply missed some important items that compromised his results. Both my firm and I highly value our good name. We never have nor will we ever put out any bad or exaggerated information knowingly. I thank Mark for his thoughts and offer to work with him or any other reader to delve deeper into the issue, so that we can all continue to provide the highest quality and most cost-effective measures and products for the industry.*

Take care,

— Jim

Jim Gunshinan  
Managing Editor  
Home Energy Magazine  
[www.homeenergy.org](http://www.homeenergy.org)

2124 Kittredge St., PMB 95  
Berkeley, CA 94704  
Tel: (510) 931-5440  
Fax: (510) 486-4673



## Exhibit P

**ETOWAH COUNTY  
COMMUNITY SERVICES PROGRAM, INC.**

PO Box 1888 ~ 109 S. 9<sup>th</sup> Street  
East Gadsden, Alabama 35902-1888  
(256) 546-9271 / (256) 546-1272 fax

**FACSIMILE TRANSMITTAL SHEET**

**DATE:** January 4, 2006

**TO:** Jim **COMPANY:** ESS Energy Products

**FAX NUMBER:** 1-610-640-1378 **OFFICE NUMBER:** \_\_\_\_\_

**RE:** \_\_\_\_\_ **NUMBER OF PAGES:** 2

**FROM:** Tracy Rhodes WX Coordinator of  
Etowah County, Alabama

**NOTES / COMMENTS**

Dennis Melesky wanted me to fax my blower door readings to you after I installed your product. The readings speaks for themselves. The Energy Guardian system is a great product for any homeowner wanting to seal attic pull down stairs. It took me about an hour to install the system only because I am very picky about how I install things. I made sure that all the seams were caulked and that the product was sealed to the floor. I could have installed it quicker. I was amazed at how much of a different my blower door reading was after the system was installed.

**CONFIDENTIALITY NOTICE:** The information contained in this transmission is privileged and confidential. It is intended for the use of the individual and entity named above. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution or the taking of any action in reliance on the contents of this telecopy information is strictly prohibited. If you have received this in error, please immediately notify the sender by telephone and return the original transmission.

**Blower Door Reading**

**Pre Blower Door: 8291 (cfm) @ 50 (PA)**

**Post Blower Door: 6417 (cfm) @ 50 (PA)**

**Readings after installation of The Energy Guardian, caulking and attic insulation:  
5804 (cfm) @ 50 (PA)**

Name: Robert Sherick

## PRESSURE DIAGNOSTICS

Number of smokers in home? 1

Unvented Fossil Fuel Heat ☐ Yes ☒ No Target MVG: 2000

Is attic heated living space? ☐ Yes ☒ No Are ceiling Roof deck common Rafter? ☐ Yes ☒ No

Estimate % of basement heated that is intentionally heated: 100 Area of home:        ft<sup>2</sup>

Can basement perimeter be air sealed cost-effectively? ☐ Yes ☒ No Volume of Home 12288 ft<sup>3</sup>

Estimate net free venting: 135 square inches

Wind: None ☒ Breeze ☐ Gusty ☐ Strong/sustained ☐ Fan location: Front Door

Air seal the attic floor even if MVG is met.

PRESSURES						
(What was blower door set at?)						
	House/Exterior		House/Zone		Zone/Exterior	
Zones	Pre-Test	Final	Pre-Test	Final	Pre-Test	Final
Basement						
Attic A	-50	-50	-38	-40	-12	-10
Attic B						
Kneewall A						
Kneewall B						
Garage						
Garage Attic						
Overhang	-50	-50	-28	0	-22	-50

### Instructional Notes:

- Intentional heated means heated and used daily
- Use House/Exterior pressures near 50 pascals if possible
- Use same gauge to measure all pressures
- 80% or better passes

TEST	Audit	Pre-Test	Pre-Test	Final
CFM50 Basmt open	2884	2884	2884	2360
CFM50 Basmt closed				
Ceiling Leakage % Over A:	-76%	-76%	-76%	-80%
Ceiling Leakage % Over G:				

### Instructional Notes:

- In attic, test since exterior pressure close to level of top floor ceiling
- House/Zone plus Zone/Exterior pressure should sum to House/Exterior +/- 1 Pascal
- Ceiling Leakage Ratio = (House/Zone/ House/Exterior) X 100=Percentage

Name: WINIFRED M WICHEK

## **PRESSURE DIAGNOSTICS**

Number of smokers in home? 0

Unvented Fossil Fuel Heat ☐ Yes ☒ No Target MVG: 1500

Is attic heated living space? ☐ Yes ☒ No Are ceiling Roof deck common Rafter? ☐ Yes ☒ No

Estimate % of basement heated that is intentionally heated: 100 Area of home: 1288 ft<sup>2</sup>

Can basement perimeter be air sealed cost-effectively? ☐ Yes ☒ No Volume of Home 20608 ft<sup>3</sup>

Estimate net free venting: 75 square inches

Wind: None ☒ Breeze ☐ Gusty ☐ Strong/sustained ☐ Fan location: Front Door

Air seal the attic floor even if MVG is met.

PRESSURES						
(What was blower door set at?)						
	House/Exterior		House/Zone		Zone/Exterior	
Zones	Pre-Test	Final	Pre-Test	Final	Pre-Test	Final
Basement	-50	-50	-42	-18	-8	-32
Attic A	-50	-50	-45	-50	-5	0
Attic B						
Kneewall A						
Kneewall B						
Garage	-50	-50	-50	-50	0	0
Garage Attic						

### Instructional Notes:

- Intentional heated means heated and used daily
- Use House/exterior pressures near 50 pascals if possible
- Use same gauge to measure all pressures
- 90% or better passes

TEST	Audit	Pre-Test	Pre-Treat	Final
CFM50 Blower open	2209	2209	2209	1422
CFM50 Blower closed	1443	1443	1443	1283
Ceiling Leakage % Over A:	-90%	-90%	-90%	-100%
Ceiling Leakage % Over G:				

### Instructional Notes:

- In attic, test sensor exterior pressure close to level of top floor ceiling
- House/Zone plus Zone/Exterior pressure should sum to House/Exterior +/- 1 Pascal
- Ceiling Leakage Ratio = (House/Zone/ House/Exterior) X 100=Percentage

Blower Door Test/Building Tightness/Chimney Safety Test

House Information

Job# 3237 Date: 7/3/02  
 Job Name Rodgers Town Prospect PA12  
 Blower Door Test: Yes ☒ No: Give Reason: # of conditioned stories: 2  
 Volume: 15,200 Basement Included: Yes ☐ No ☒  
 Surface Area: 2325 Type Model: Minps. #2 (#3)  
 Exposed ☐ Normal ☒ Shielded ☐ Method Used for CFM50:  
 Type of structure: Frm Single Computer Graph/ direct read  
 PRE TEST (CFM50): 4931 Tester: TH  
 Describe conditions and large air leakages: TRAP door AREA.

Number of occupants: 4 Other MVG adjustments  
 Number of smokers: 1 Total MVG adjustment 1750  
 POST TEST at CFM50: 3501 Tester: TH

Describe minor air sealing performed: base boards, window + door frames, entrance doors  
Trap door energy guard

This section is to be performed after all weatherization work is completed

Chimney safety test: Outside Temp. 90 Exhaust devices activated Y  
 Furnace fan activated: yes ☐ no ☐ n/a ☒ Spillage: Heater None other: None  
 Draft (inches/pascals): Primary Heater 05 DHW ☐ Other ☐

Are there any negative pressure exist in the area of the combustion appliance zone while a forced air distribution system fan is operating. Yes ☐ No ☒

COMMENTS: Boiler

-----  
 MBD MODEL 3  
 9/12/02  
 RODGERS  
 525 11TH AVE PRO  
 AREA= 2325ft<sup>2</sup>  
 VOLUME= 15200ft<sup>3</sup>  
 NUMBER OF STORIES = 2.0  
 WIND FACTOR = 1.0  
 TEST DONE BY:  
 CREW  
 T IN= 72F T OUT= 68F  

PH	Pf	CFM	%Error
60	72	4047	0
50	55	3542	1
54	60	3698	-0
47	48	3312	-0

 CORR. COEF. = 0.995  
 C= 159.59 n= 0.791  
 LEAKAGE AREAST  
 Effective L.A. (LBL)=  
 134.61sq in  
 Equivalent L.A. (Can.)=  
 287.88sq in  
 MPLS LEAKAGE RATIO= 1.50  
 cfm50 / sq ft  
 CFM50 = 3581  
 AC/H50 = 15.02 AC/H  
 ESTIMATED NATURAL INFIL:  
 = CFM50 / 14.3  
 = 243 CFM  
 = 0.961 AC/H  
 = 60.9 CFM/PERSON  
 HOUSE PRESSURE  
 4Pa 10Pa 50Pa  
 CFM 474 980 3581  
 ST ERR % 14.1 9.1 0.6

-----  
 MBD MODEL 3  
 9/12/02  
 RODGERS  
 525 11TH AVE PRO  
 AREA= 2325ft<sup>2</sup>  
 VOLUME= 15200ft<sup>3</sup>  
 NUMBER OF STORIES = 2.0  
 WIND FACTOR = 1.0  
 TEST DONE BY:  
 CREW  
 T IN= 72F T OUT= 68F  

PH	Pf	CFM	%Error
50	105	4877	-1
43	95	4593	2
39	75	4130	-1
34	64	3918	-0

 CORR. COEF. = 0.982  
 C= 385.91 n= 0.652  
 LEAKAGE AREAST  
 Effective L.A. (LBL)=  
 268.95sq in  
 Equivalent L.A. (Can.)=  
 506.64sq in  
 MPLS LEAKAGE RATIO= 2.12  
 cfm50 / sq ft  
 CFM50 = 4931  
 AC/H50 = 19.46 AC/H  
 ESTIMATED NATURAL INFIL:  
 = CFM50 / 14.3  
 = 343 CFM  
 = 1.334 AC/H  
 = 83.7 CFM/PERSON  
 HOUSE PRESSURE  
 4Pa 10Pa 50Pa  
 CFM 948 1725 4931  
 ST ERR % 20.7 12.7 1.9  
 -----

## Home Performance with ENERGY STAR

### HOT WATER SYSTEMS

(Check all that apply)

Primary DHW Fuel: ☒ Natural Gas ☐ Oil ☐ Propane ☐ Electric ☐ Wood ☐ Other

DHW Type: ☐ Indirect ☒ Tank-Standard ☐ Tank-High Efficiency ☐ Tankless ☐ Tankless w/backup  
☐ Heat pump ☐ On Demand ☐ Other Age: 2001 Yrs.

Condition: ☒ Good ☐ Fair ☐ Poor Tank Size: 40 gal.

Tank Location: ☒ Basement ☐ Living Space ☐ Attic ☐ Other

Outer Jacket of Insulation Existing: ☐ Yes ☒ No

REPLACE TANK: ☒ Yes ☐ No New Tank Efficiency (EF Rating): 61 %

Secondary DHW Fuel: ☐ Natural Gas ☐ Oil ☐ Propane ☐ Electric ☐ Wood ☐ Other

DHW Type: ☐ Indirect ☐ Tank-Standard ☐ Tank-High Efficiency ☐ Tankless ☐ Tankless w/backup  
☐ Heat pump ☐ On Demand ☐ Other Age: \_\_\_\_\_ Yrs.

Condition: ☐ Good ☐ Fair ☐ Poor Tank Size: \_\_\_\_\_ gal. Outer Jacket of Insulation Existing: ☐ Yes ☐ No

Tank Location: ☐ Basement ☐ Living Space ☐ Attic ☐ Other

REPLACE TANK: ☐ Yes ☐ No New Tank Efficiency (EF Rating): \_\_\_\_\_ %

NOTES:

PARALLEL 6-61-40 540 = 3.1W

### AIRSEALING

(Check all that apply)

Choose "N" Factor (1" 20) for the region (lower number indicates a more severe climate).  
Multiply by "Building Envelope Correction Factor" (adjust for story: (1 story = 1 / 1.5 story = 1.5 / 2 story = 2)  
to determine "Adjusted N Factor" (number is always 20 or lower)

OCCUPANT BAS = Number of occupants X 15 (cfm) X "Adjusted N Factor" 18 VIT x 3 =

Building Airtightness Standard (BAS): 2486 cfm50 3.5

House Pressure: 5.1 Pascals Fan Pressure: 192 Pascals Fan Ring: ☒ Open ☐ B ☐ C

Inside Temp: 65 Outside Temp: 38 F Building Leakage: 2486 cfm50

Proposed Air Sealing Steps: ☐ 15 ☐ 50 ☐ 75 ☐ 1.0 ☐ 1.25 ☐ 1.5 ☐ 1.75 ☐ 2.0 ☐ Other

Air Sealing Locations: ☒ Attic ☒ Basement / Crawl ☐ Living Space ☐ Other

Notes:



Mar 26 04 09:54  
08/11/1994 20:59

Michael Melesky  
9146213619

610-873-9093  
CLOVER HTG.

P.2  
PAGE 02

MR. Renaudin

### Post-Installation Test Data

#### Blower Door Test:

Test Date:

3/17/04

HVG: 977 PM50 3.5  
House Pressure: 50 (Pascals) Fan Pressure: 45 (Pascals) Fan Ring: ? Open (A) 1.0 1 C  
Inside Temp: 72 Outside Temp: 38 F Building Leakage: 1150 CFMS0

#### Combustion Safety Test:

Test Date:

Venting Type: Atmospheric = Natural = N Induced = I Power Vent = E Direct Vent = D  
CO Ambient (max) in Living Space: 0 PPM // CO Ambient (max) in CAZ (during test): 0 PPM  
Combustion Appliance Zone (CAZ) Base Pressure: -1.5 Pa. / Worst Case Pressure: 2.3 Pa.

Appliance Type	Venting Type (N/I/P/D)	Drift (Pascals)	Spillage (Worst Case)	Spillage (Natural)	CO (Worst Case) PPM	CO (Natural) PPM
Heating System	N/I/P/D	-1.5 Pa.	Pass / Fail	Pass / Fail	149/39 PPM	PPM
Water Heater	N/I/P/D	-1.5 Pa.	Pass / Fail	Pass / Fail	211/21 PPM	PPM
Gas Oven	N/I/P/D	-1.5 Pa.	Pass / Fail	Pass / Fail	32 PPM	PPM
	N/I/P/D	-1.5 Pa.	Pass / Fail	Pass / Fail	PPM	PPM
	N/I/P/D	-1.5 Pa.	Pass / Fail	Pass / Fail	PPM	PPM

#### Warranty

Dealer/Contractor warrants that the work and the equipment furnished in this installation job comply with the requirements as outlined in the Contractor Participation Agreement with Home Performance with ENERGY STAR and, if applicable, EFS, in the Contractor Participation Agreement with EFS. In the event that any defect in workmanship is discovered within one (1) year after payment authorization, the Dealer/Contractor will remedy, repair or cause to be remedied, repaired, corrected or replaced at Dealer/Contractor's expense such defect in equipment or workmanship. This foregoing warranty survives any inspection Home Performance with ENERGY STAR or EFS, that EFS may elect to make.

#### Lien Waiver

Dealer/Contractor hereby waives and releases any and all lien or claim of, or right, to lien, under laws relating to mechanics liens with respect to and on the property referenced above.

#### Customer Statement

The undersigned hereby certifies personal ownership of the home specified above, that all materials and equipment included in the construction contract (work order, job order, bid summary, proposal, invoice, etc.) have been furnished and installed, and that the work has been completed and I am satisfied with work. In addition, if this job was financed by EFS, I hereby certify that we have not obtained the benefits of and will not receive any cash payment, rebate, cash bonus, sales commission, or anything from the contractor as inducement to enter into the EFS Loan Agreement. If this job was financed by EFS, we also agree to the terms specified in the Loan Agreement and authorize payment to the above Dealer/Contractor.

3/17/04  
Date

Read the above statements before signing.  
X Mark Renaudin  
Customer Signature

3/17/04  
Date

Claver Heating & Cool  
Dealer/Contractor Business Name  
Dealer/Contractor Signature

## Exhibit Q

# Tompkins Community Action

EARLY CHILDHOOD ~ ENERGY SERVICES ~ FAMILY RESOURCES ~ HOUSING

James Malesky  
President  
ESS Energy Products, Inc.  
P.O. Box 400  
Paoli, PA 19301

August 25, 2006

Dear Jim:

I want to let you know that we are very pleased with *The Energy Guardian*™ Kits. We use them primarily for push up hatches since that is what the majority of our homes have, but we also use your other kits as well. Overall, they are very effective for our clients and serve as an important efficiency tool for our operations.

Everyone in the weatherization business knows that the attic access is an important part of the thermal barrier of the home. Without a proper mitigating measure, it is a major source of energy loss.

Before we found *The Energy Guardian* Kits, we used foam board and weather-stripping to seal up the accesses. While it was an improvement over the existing conditions, it didn't come close to solving the problem like your kits. We've looked at other products over the years, but none of them met our standards. Some didn't have the high R-Value we were looking for. Others were flimsy. Some didn't look like they were "homeowner-friendly".

Like all of our upgrades, we need to cost-justify improvements to the attic access. It is essential that any measure will produce energy savings for many years. Your products easily meet our thresholds because of four major factors. First, you have a high R-value which is a major improvement over what is already there. Second, the air-sealing qualities of your kits are great. The extended warranty gives us the confidence that the improvement will last and our savings projections will be accurate. My crews really appreciate spending less time in the attic as it takes less time to install the kit than make our own solution.

Finally, it's lightweight and easy for the customer to use when they enter the attic. In fact, ease of use might be an easily overlooked feature. If the upgrade is too difficult to use, it will not remain in the home for long after we leave. Because the lid of your kits fits right into the frame without any hooks or other devices to secure the air seal, it is practical and straightforward for the homeowner. Your kits solve this problem like no other solution that my organization has built, bought or otherwise seen available in the market.

ESS has also been a great partner. All of our dealings with your company have been positive, and your staff makes sure that we get the proper attention and that our order is processed correctly.

Thanks for a great solution to a major problem. I'd be happy to be a reference for the effectiveness of *The Energy Guardian* Kits. I believe that your kits set the standards for any other agency or contractor that weatherizes homes.

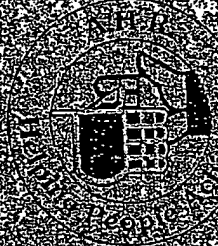
Yours truly,



Fran Rice  
Energy Services Coordinator  
Tompkins Community Action

701 Spencer Road, Ithaca, NY 14850 ~ Phone: 607/273-8816 ~ Fax: 607/273-3293

## Exhibit R



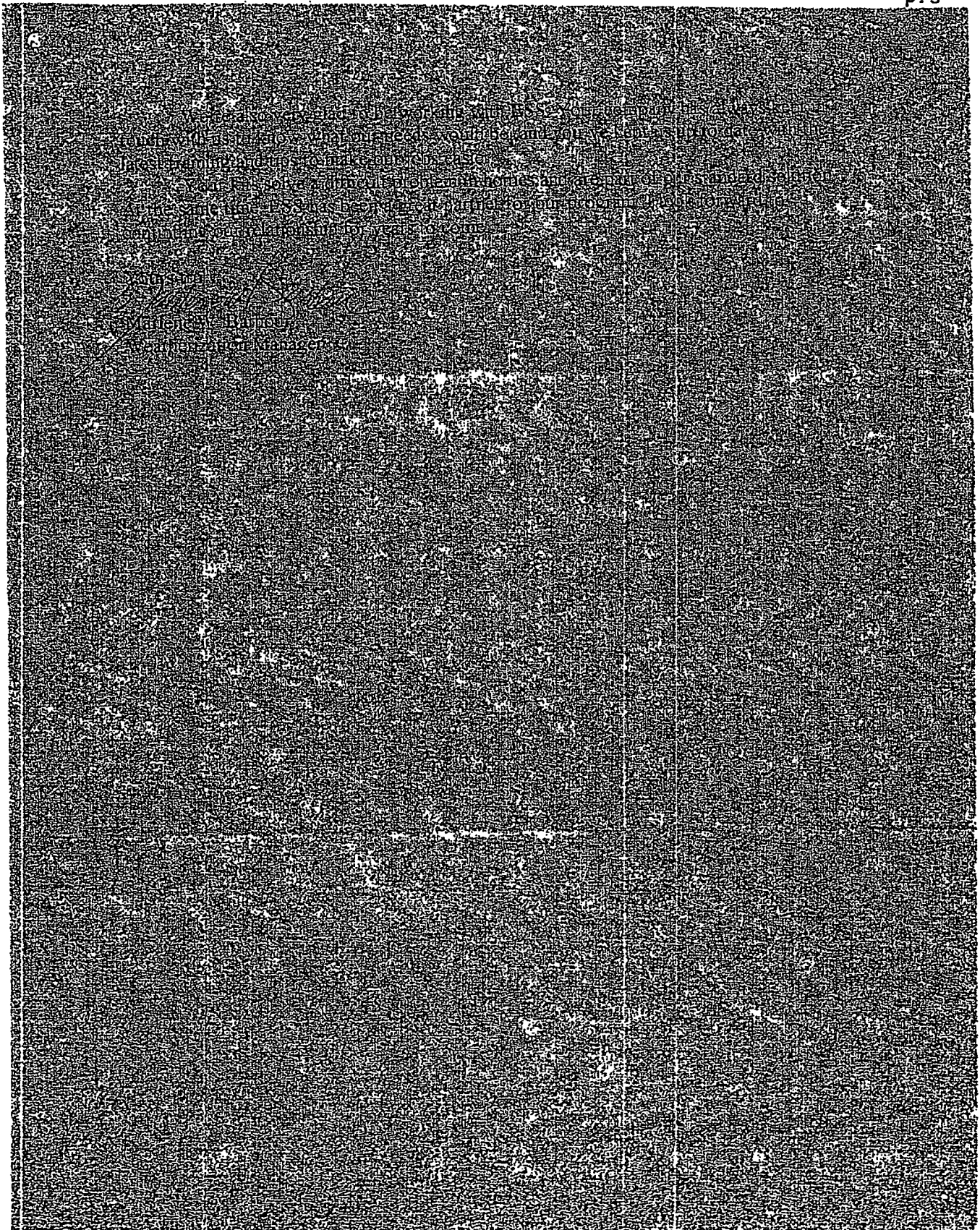
## ATLANTIC HUMAN RESOURCES, INC. RECRUITMENT PROGRAM

One of the most important factors in the success of any business is the quality of its personnel. Atlantic Human Resources, Inc. is a leading national firm specializing in the recruitment and placement of top management and executive talent for a wide variety of industries. Our extensive network of consultants and field offices throughout the United States and abroad enables us to provide a comprehensive service to our clients. We are currently seeking qualified individuals for the following positions:

Our clients are seeking individuals who are highly motivated, self-starter, and capable of handling a wide range of responsibilities. The ideal candidate will have a minimum of a Bachelor's degree and several years of experience in a related field. We are looking for individuals who are able to work independently and as part of a team. The successful candidate will be responsible for the following duties:

- Develop and implement recruitment strategies to attract top talent.
- Conduct interviews and screen candidates.
- Prepare job descriptions and specifications.
- Maintain a database of potential candidates.
- Provide ongoing support and training to new hires.

If you are interested in this position, please send your resume and cover letter to: Atlantic Human Resources, Inc., 1234 Main Street, Suite 500, New York, NY 10001. We are an equal opportunity employer. Minorities and women are encouraged to apply.



## **Exhibit S**



----- Original Message -----

**From:** Jan Vallado

**To:** 'ESS Info'

**Sent:** Wednesday, June 08, 2005 12:41 PM

**Subject:** RE: Attic Stair Cover

You have ESP they just came to my house this morning and installed the unit. IT'S AMAZING the difference was instant. It is very hot and humid here today. As soon as they got it up and we closed it you could immediately feel the cool air. I also noticed that when I opened my laundry room door to the garage I did not have an "in flush" of air rushing in. They wanted me to tell you it's the first one they've done. It took them a while because of my attic layout and some wiring cords in the way but they got it done and they said it was really easy. They read up on the video or training info yesterday and went right to it.

I can't wait to see the difference in my utility bills. I must have been pouring air and heat out my roof through that attic hatch. Why would they put it inside the house and not in the garage is beyond me but who am I.

I'm thrilled with your product. I'm so glad I went with yours instead of the battic door I was considering. You pay for what you get as the old saying goes !!!!!

Jan Vallado  
Jim Hughes Co  
972-221-1536 ph  
972-221-1537 fx  
[www.jimhughesco.com](http://www.jimhughesco.com)

-----Original Message-----

**From:** ESS Info [mailto:[info@essnrg.com](mailto:info@essnrg.com)]

**Sent:** Wednesday, June 08, 2005 8:54 AM

**To:** Jan Vallado

**Subject:** Re: Attic Stair Cover

Jan:

I am glad that you arranged to have the unit installed by Mr. HAndyman. Please give me your feedback on the installation. We now have a toll free number if you would like to call. 1-877-ESS-4NRG.

Regards,

Jim

----- Original Message -----

**From:** Jan Vallado

**To:** [info@energysentrysolutions.com](mailto:info@energysentrysolutions.com)

**Sent:** Wednesday, June 01, 2005 11:22 AM

**Subject:** Attic Stair Cover

Hi,

I ordered this last week I was wondering if you could give me the waybill/tracking # for the shipment. I called Mr. Handyman locally and have someone coming out on the 8<sup>th</sup> to install it. Should arrive this week I would think.



Thank you,  
Jan Vallado  
2019 Highland Forest Drive  
Highland Village, TX 75077  
972-221-1536 work  
972-317-5474 home

## Exhibit T

----- Original Message -----

**From:** Donovan, Jim G

**To:** 'James Melesky'

**Sent:** Thursday, December 22, 2005 1:20 PM

**Subject:** 6 PM Ratings

Hi Jim,

I took a look at our ratings for yesterday. We had a 4.7 rating when the story aired, that translates roughly into 139,000 viewers.

I'll try to get in touch with my CN8 contact for you next week.

Happy Holidays!

Jim Donovan

## Exhibit U

----- Original Message -----

From: Amy Bader

To: [jmelesky@energysentrysolutions.com](mailto:jmelesky@energysentrysolutions.com)

Sent: Thursday, November 20, 2003 11:12 AM

Subject: order

Hello,

I'd like to order the attic insulating door. I heard of your product from family in Pennsylvania -- I formerly lived in West Chester, but have recently relocated to Buffalo, New York.

My attic opening is 27 1/4 inches wide, 56 1/2 inches long and the ladder is approximately 7 inches above the attic floor (I measured the depth of the folded ladder minus the recess of the opening).

Please let me know what further information you need and how you prefer to arrange payment. Thank you,

Amy Bader

305 Pilgrim Rd.

Tonawanda, NY 14150

[amybadervmd@yahoo.com](mailto:amybadervmd@yahoo.com)

## Exhibit V

----- Original Message -----

From: John Ohm

To: Jim

Sent: Wednesday, July 16, 2003 4:47 PM

Subject: Fw: The Energy Guardian

----- Original Message -----

From: John Ohm

To: Melenchek, Linda M ; jagrant@pplweb.com ; dthomas@gpu.com ; Land, Jane H

Cc: tsterner@supernet.com ; Rivera, Rosa ; Richard ; Patchday@aol.com ; ohmwx@yahoo.com ; Jack ; Tamasin Sterner

Sent: Wednesday, July 16, 2003 4:05 PM

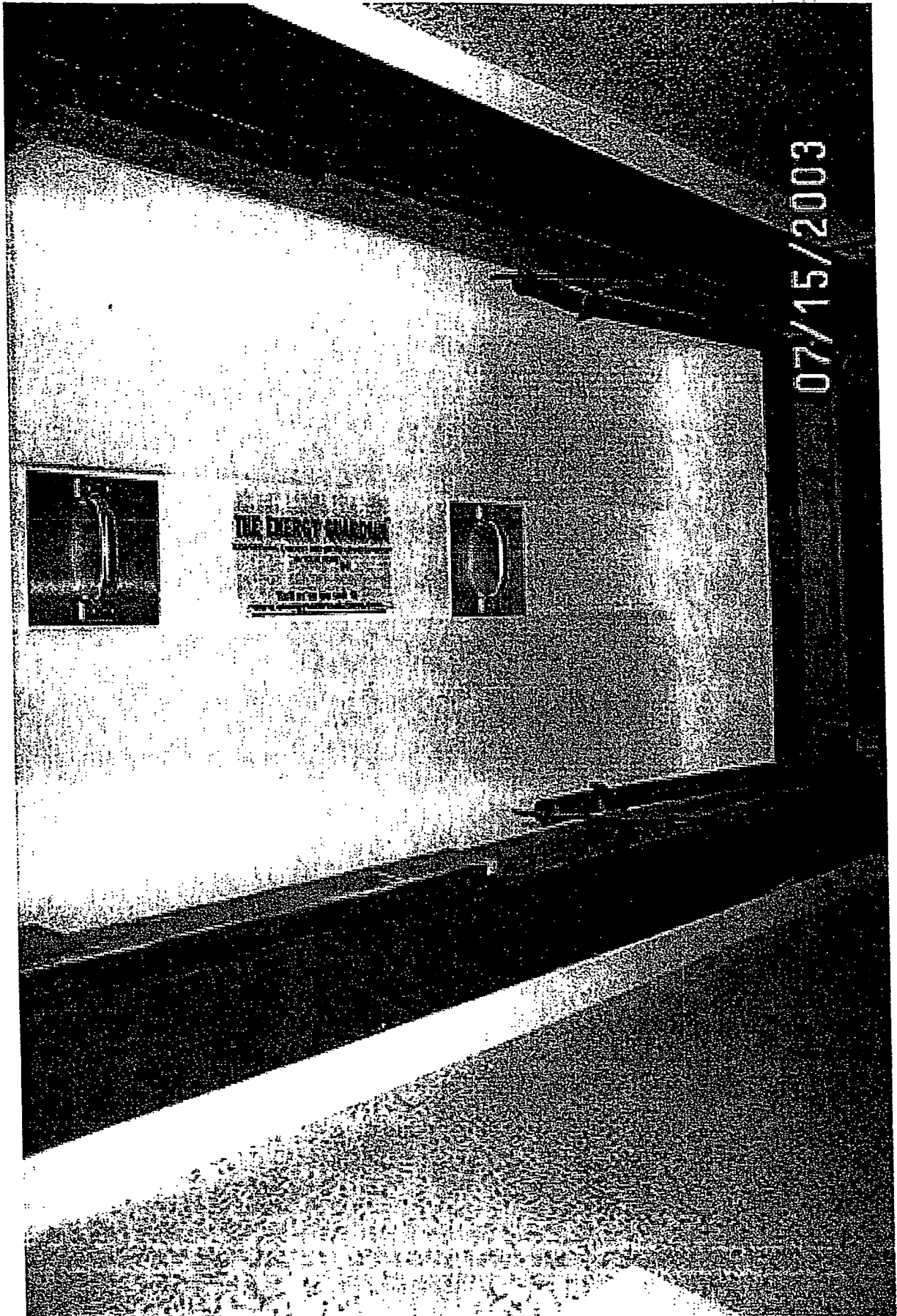
Subject: The Energy Guardian

Hi,

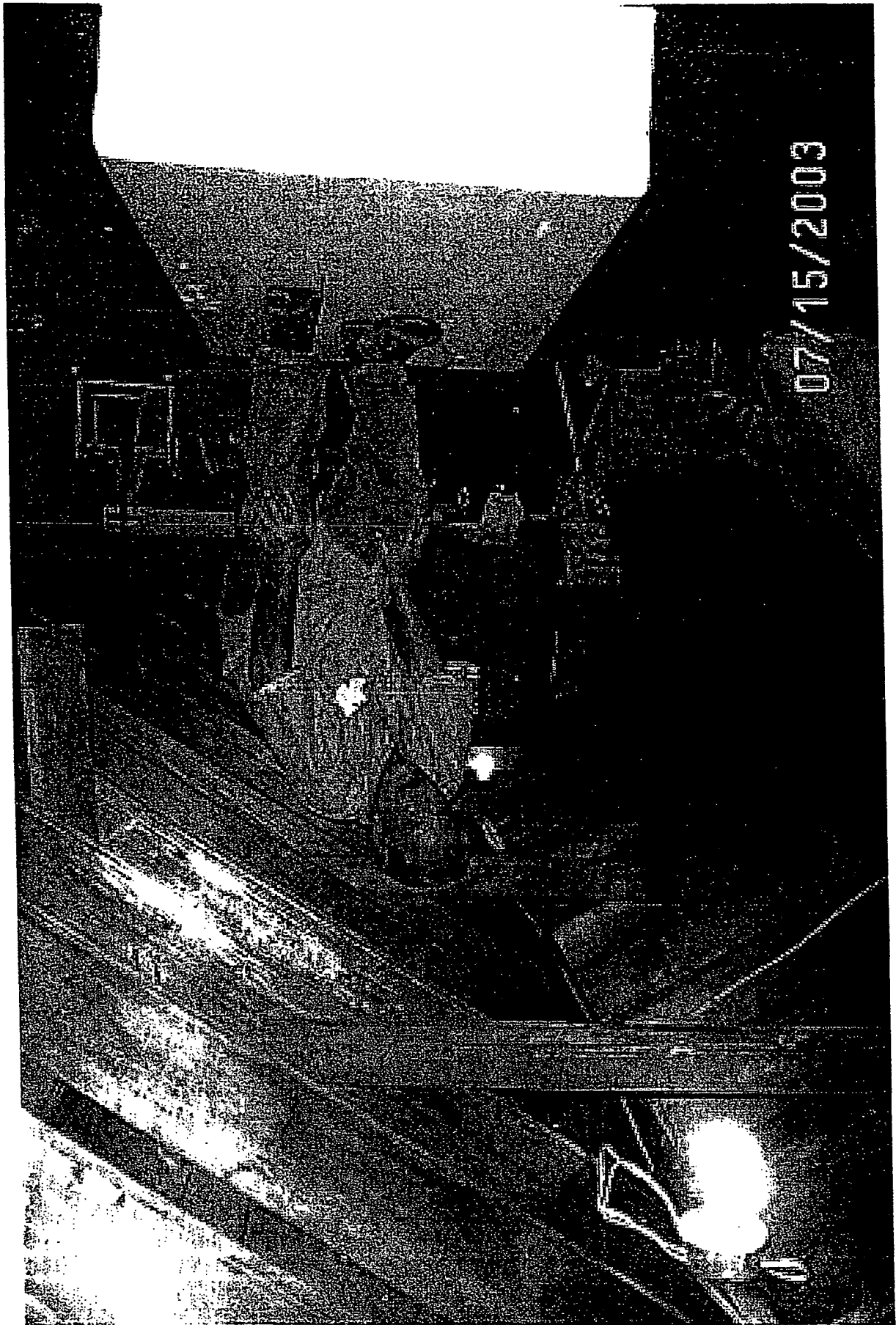
We have just installed our 1st hatch from The Energy Guardian. This was the time I ever installed one of these units and found it was very simple to do. I am one of those people that reads directions as a last resort. This hatch proved to be so easy that I was able to install it without reading the directions. The whole process took me about 15 minutes. Working in this attic was a little on the warm side at around 140 degrees. I took a number of pictures that have been included in this email. The 2 of most interest to me were the ones with the IR camera before and after. The home was being cooled with the A/C unit and was at around 80 degrees. That puts the temp differential between the attic and the home at a difference of 60 degrees. The before shot shows this very well. After the hatch was installed the finish shot had a small temp difference with the pull down stairs. I was concerned about the strength of this hatch so I found an Elderly Gentleman, that was carrying a few extra pounds to stand on this hatch. As that picture shows he was a little careful about where he stood and stayed close to the end.

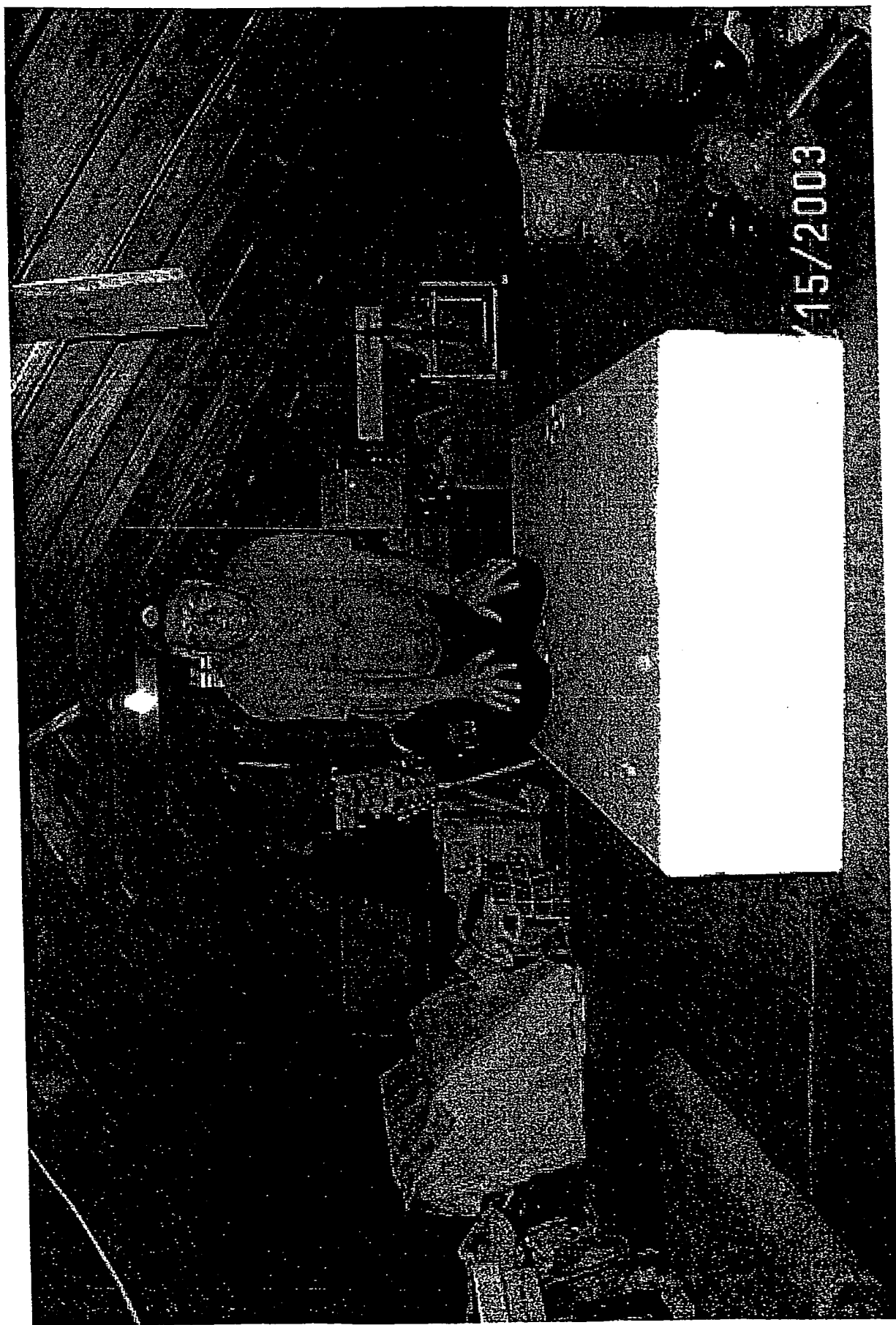
Jack was a good sport helping on this installation from CACLV. I thought I would pass this on.

John









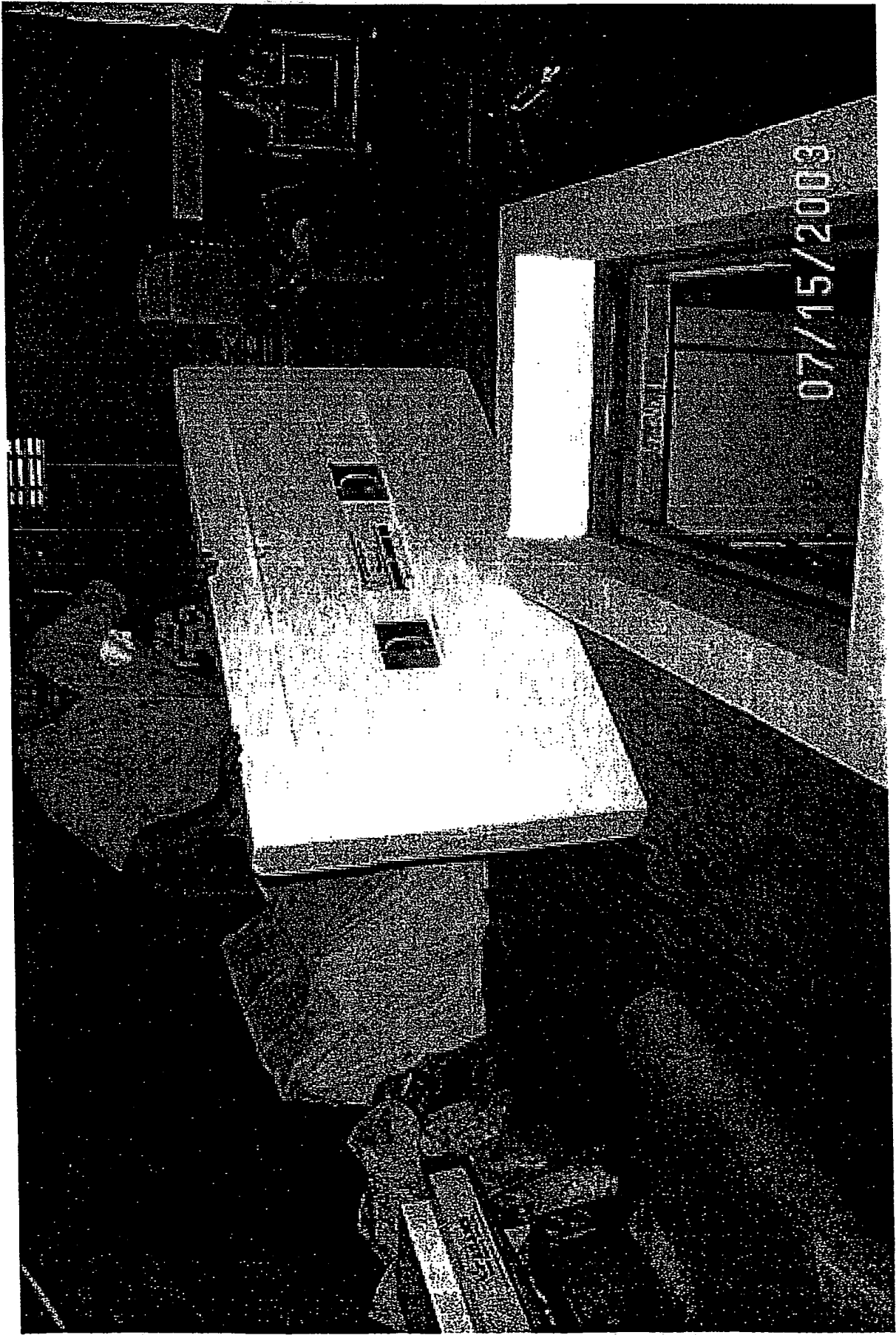
4/15/2003

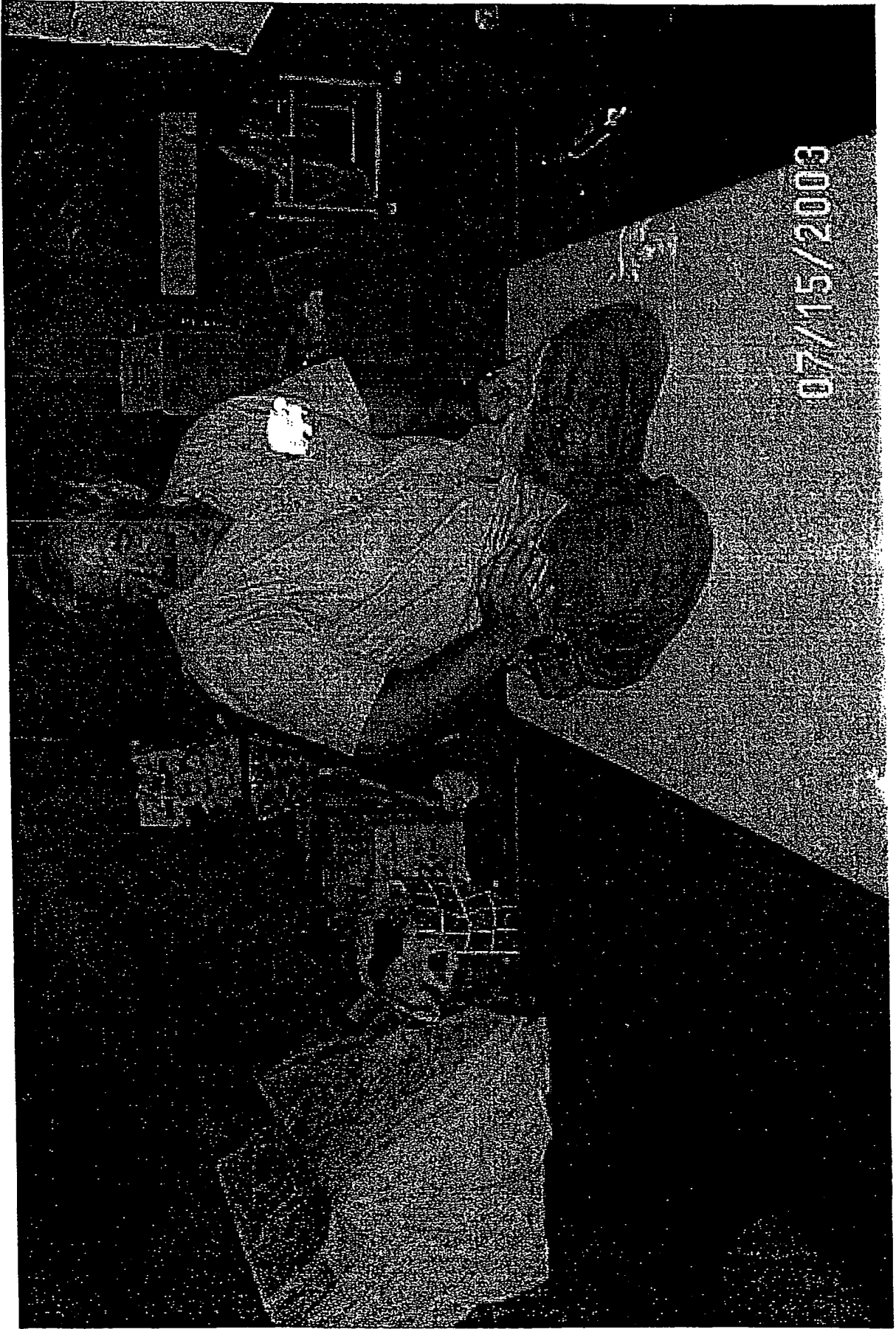


07/15/2003

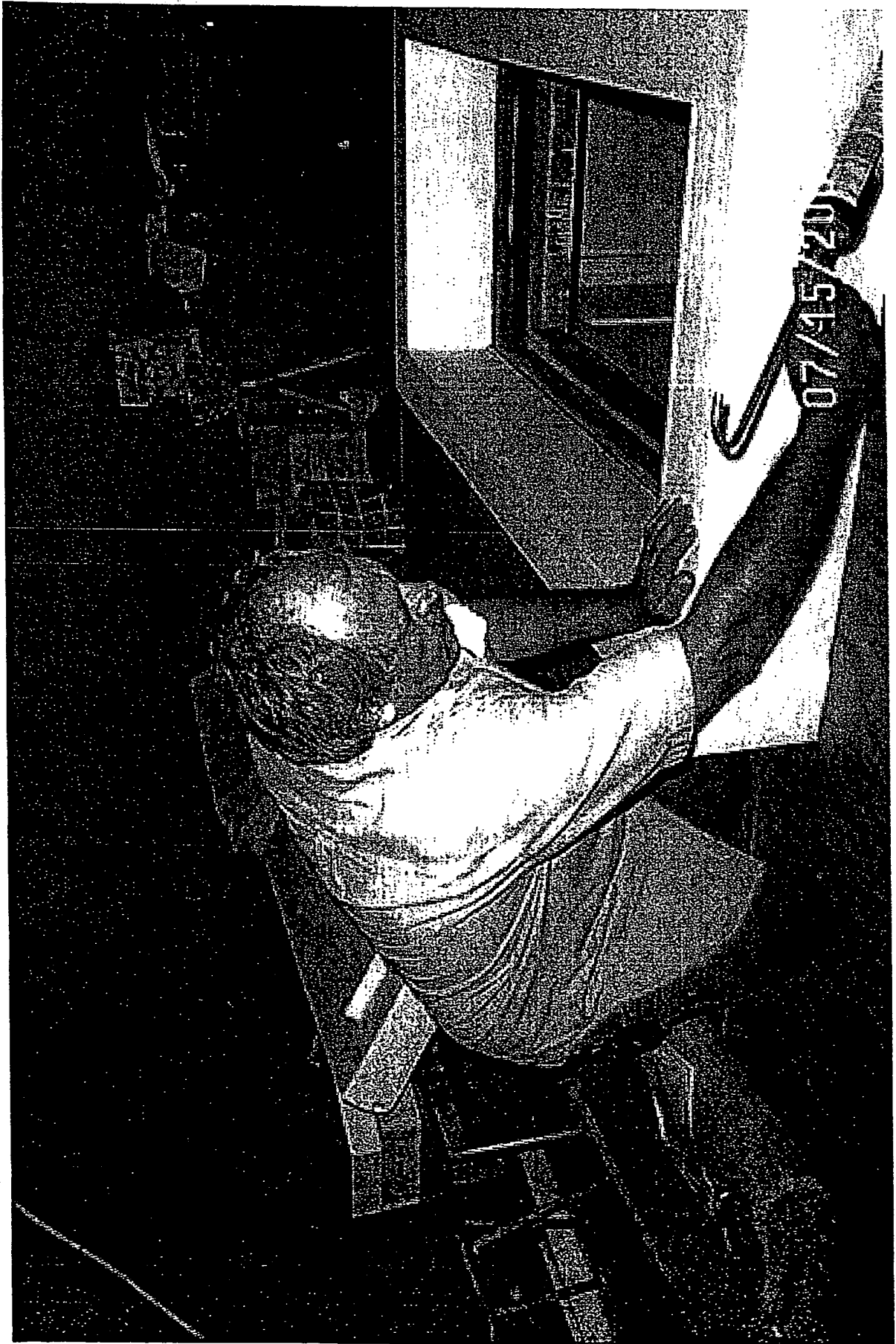


07/15/2003

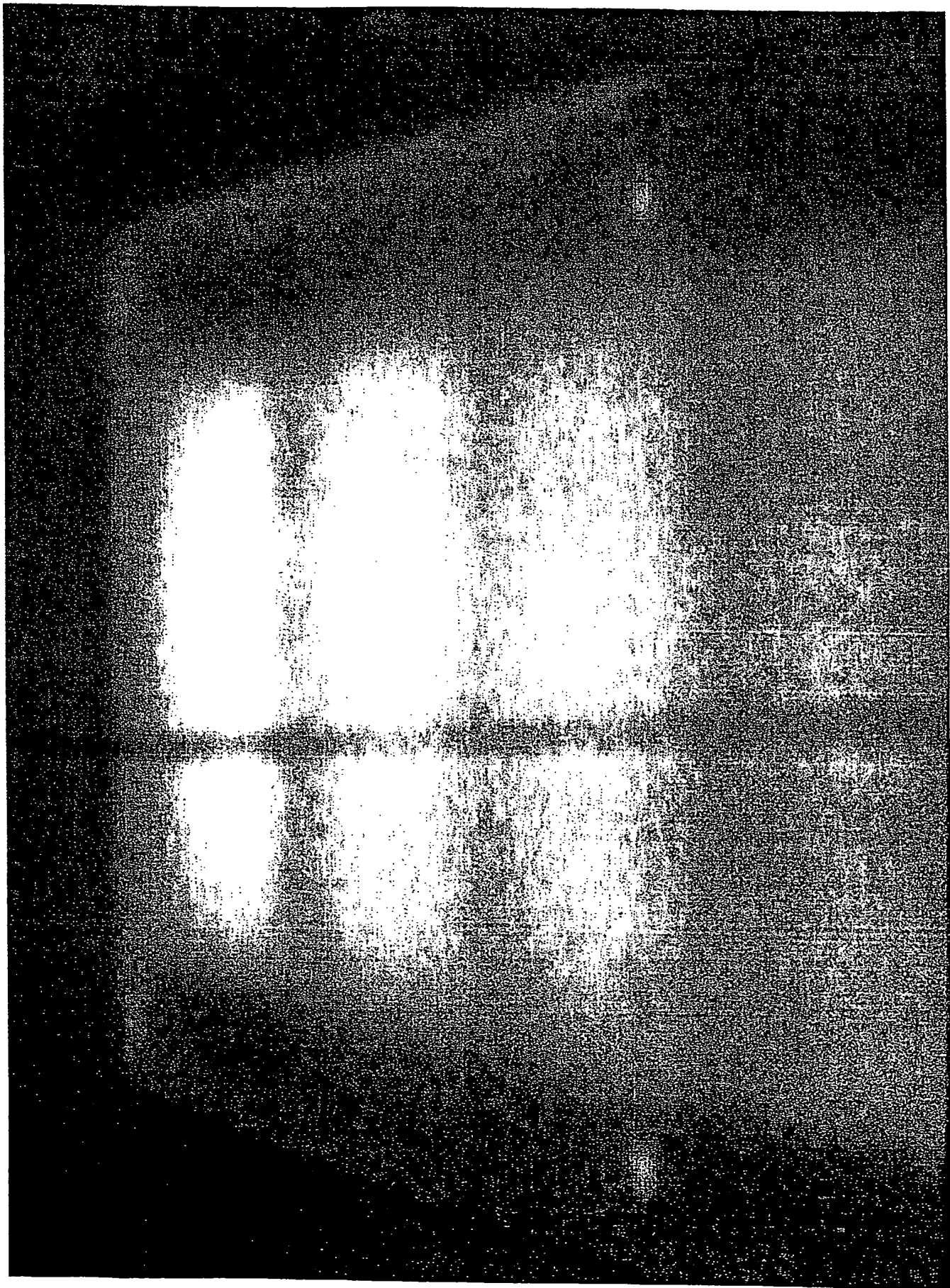




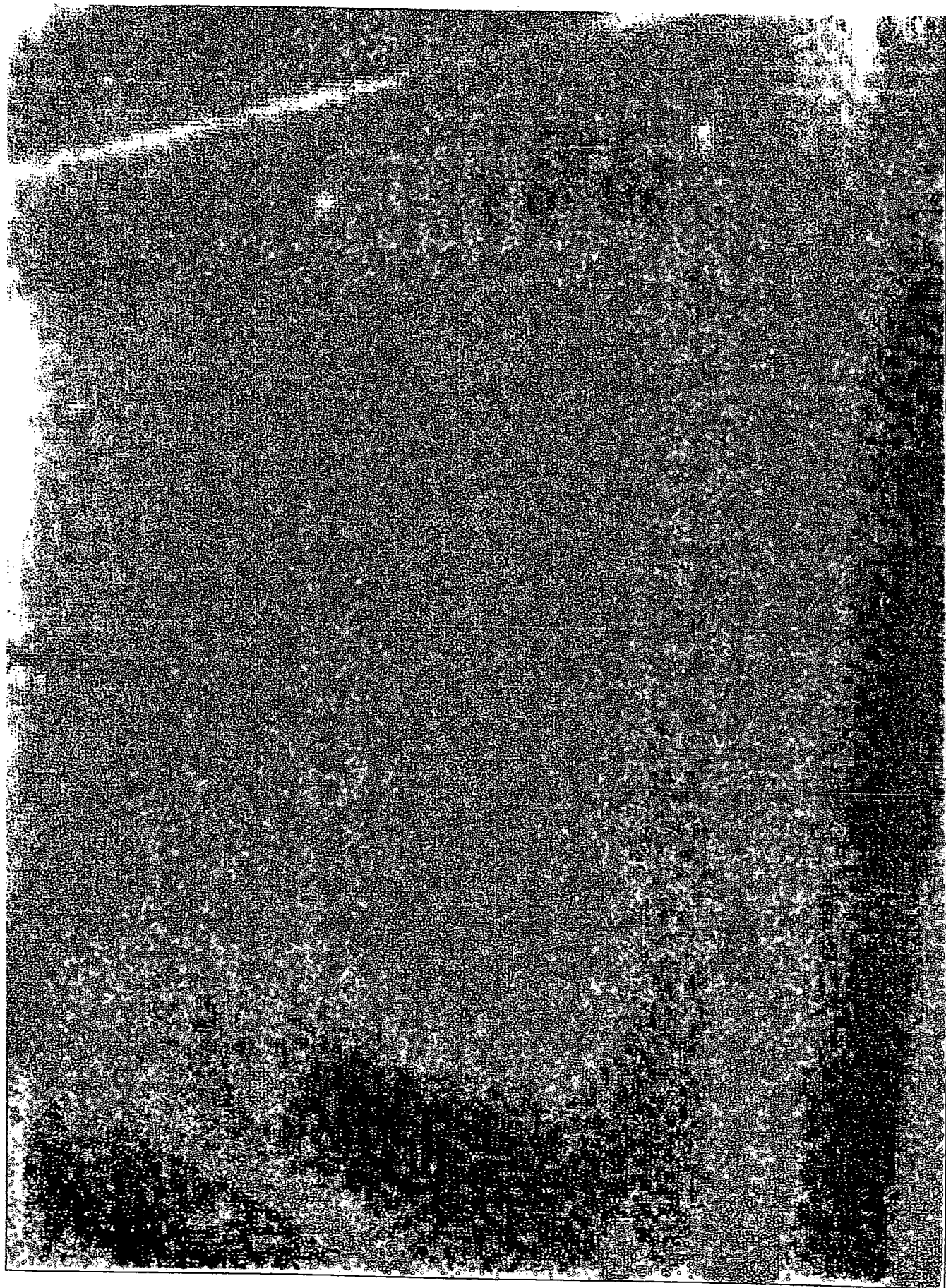
07/15/2003











## Exhibit W

----- Original Message -----

From: [Rocket19335@aol.com](mailto:Rocket19335@aol.com)

To: [jmelesky@energysentrysolutions.com](mailto:jmelesky@energysentrysolutions.com)

Sent: Friday, January 09, 2004 6:43 PM

Subject: (no subject)

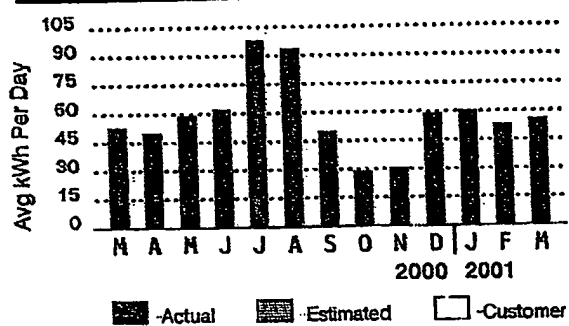
hi jim. i wanted to send a note of thanks for the work you and your son did for us  
we have seen a big difference in the warmth of our bedroom since the attic insulator was installed. i have not  
been able to determine the money savings yet due to the strange weather we've been having, but just to be  
warmer is great! i did talk to gretchen metz this week. i told her how happy we are with your product and  
services and i thanked her for running the story about your products. she sounded quite interested in trying it  
out herself one last note, i found a kind of flashlight snake light hanging in the attic. i guess it is yours so, if  
you're missing one it's here.  
thanks again for your help, sandie stanzione

## Exhibit X

### Your Electric Use Pattern

Average kWh per month 1,823.7  
 Total Annual kWh 21,885.0

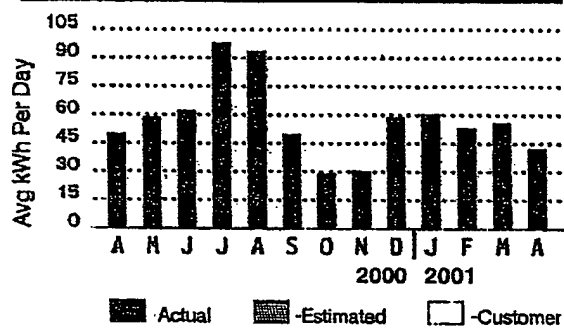
	Last Year	This Year
kWh per day	54.6	56.3
Meter Reading	Actual	Actual
Average Temperature	47°	40°



### Your Electric Use Pattern

Average kWh per month 1,813.5  
Total Annual kWh 21,762.0

	Last Year	This Year
kWh per day	50.4	43.4
Meter Reading	Actual	Actual
Average Temperature	52°	50°

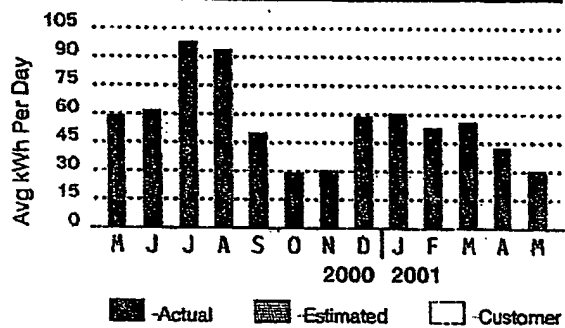


### Your Electric Use Pattern

Average kWh per month 1,728.7

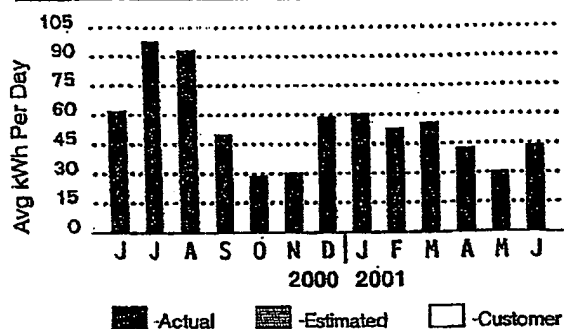
Total Annual kWh 20,721.0

	Last Year	This Year
kWh per day	60.0	31.4
Meter Reading	Actual	Actual
Average Temperature	61°	63°



PECD31

Average kWh per month	1,685.6	
Total Annual kWh	20,228.0	
	Last Year	This Year
kWh per day	63.6	45.1
Meter Reading	Actual	Actual
Average Temperature	68°	70°

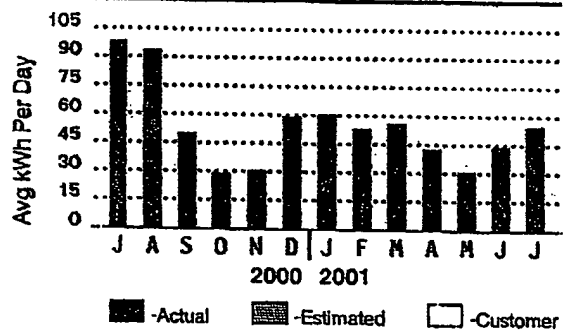


PE0031



### Your Electric Use Pattern

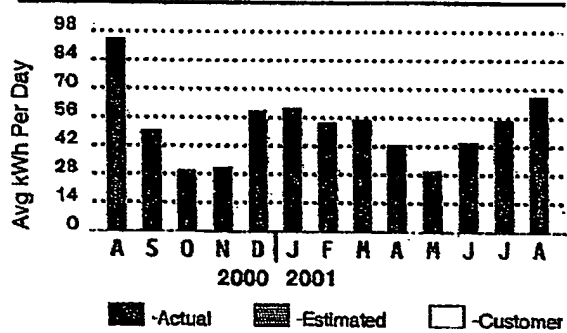
Average kWh per month	1,581.9	
Total Annual kWh	18,983.0	
	Last Year	This Year
kWh per day	99.2	55.5
Meter Reading	Actual	Actual
Average Temperature	75°	76°



### Your Electric Use Pattern

Average kWh per month 1,493.0  
 Total Annual kWh 17,917.0

	Last Year	This Year
kWh per day	94.7	67.7
Meter Reading	Actual	Actual
Average Temperature	74°	78°



PECOS1

## Exhibit Y

----- Original Message -----

**From:** Wayne Raffety

**To:** Jim Melesky

**Sent:** Sunday, December 21, 2003 3:57 PM

Jim,

It has been a year since you installed our Energy Guardian. The comparison is still very difficult because we still do not have a year to year comparison and there was a big difference between last winter and this so far. There is no question, however, about whether it is effective. As a matter of fact, we are probably going to have to reinsulate the middle level of our split level house because the heat now does not escape the upstairs and the thermostat is on the middle level, so the furnace heats for the lowest common denominator.

We are very satisfied with the Energy Guardian and you can quote me if you wish. Hope all is well with you and your family and your business. Happy Holidays!

Wayne Raffety

## Exhibit Z

----- Original Message -----

**From:** Dan Pourreau

**To:** [jmelesky@energysentrysolutions.com](mailto:jmelesky@energysentrysolutions.com)

**Sent:** Friday, February 13, 2004 9:24 AM

**Subject:** Energy Guardian Savings

Hi Jim,

My January 2004 bill is attached and shows a 0.8 Ccf/day reduction in gas usage vs last January despite a lower average temperature and the fact we finished our basement in July.

Since we are now heating 1/3 more space than last year, I estimate we saved at least \$ 189.65 in January by installing the Guardian. I added foam insulation to provide an air-tight seal between the floor and the guardian.

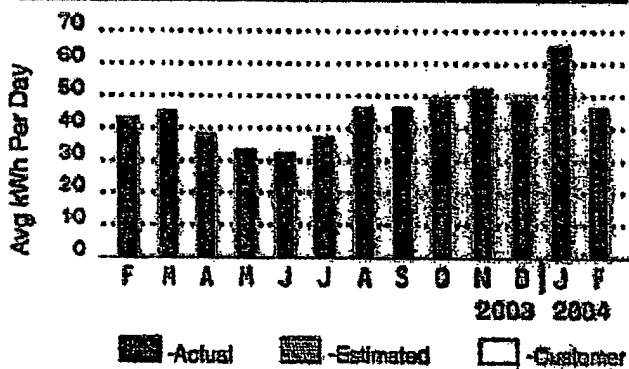
Regards,

Dan

### Your Electric Use Pattern

Average kWh per month 1,400.0  
Total Annual kWh 16,801.0

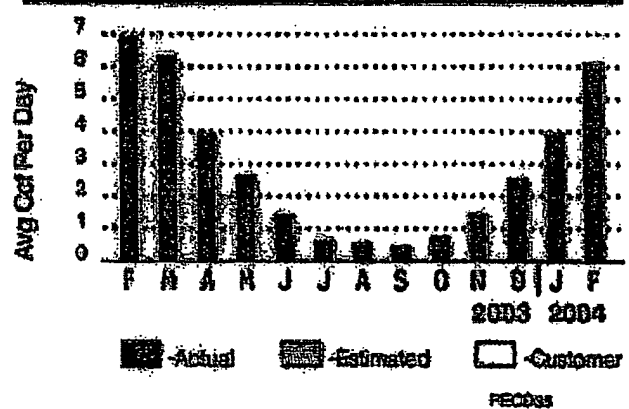
	Last Year	This Year
kWh per day	43.6	48.9
Meter Reading	Actual	Actual
Average Temperature	28°	24°



### Your Gas Use Pattern

Average Ccf per month 80.5  
Total Annual Ccf 967.0

	Last Year	This Year
Ccf per day	7.0	6.2
Meter Reading	Actual	Actual
Average Temperature	26°	24°



REC033

## Exhibit AA



----- Original Message -----

**From:** Brian Dietrich, CIC

**To:** jmelesky@energysentrysolutions.com

**Sent:** Monday, December 08, 2003 11:59 AM

**Subject:** Big Thanks

Dear Jim:

Big Thanks to you and your son Kevin for coming out to assist me with my "Energy Guardian" insulation "Cap" on Sunday! You were so thoughtful in helping me out.

It has already noticeably improved my heat loss from the attic access door. I completed the caulking and installation yesterday- and it has made a HUGE difference already!

Thanks again, Brian

---

Brian J. Dietrich, CIC

Asst. Vice President

M. F. Irvine & Associates, Inc.

t: 610 834-8866 x 204

f: 610 834-1955

e: [bdietrich@irvineandassociates.com](mailto:bdietrich@irvineandassociates.com)

**Exhibit BB**

----- Original Message -----

From: "Brian Dietrich, CIC" <bdietrich@irvineandassociates.com>

To: <jmelesky@energysentrysolutions.com>

Sent: Wednesday, December 10, 2003 10:57 AM

Subject: RE: Big Thanks

> Jim:

>

> Attached is my testimonial note.

>

> Also, when you were at our house you left your tape measurer. Please  
> let me know when you would like to pick it up, or if you would like me  
> to drop it off somewhere for you.

>

> Thanks, Brian

>

> -----

> Brian J. Dietrich, CIC

> Asst. Vice President

> M. F. Irvine & Associates, Inc.

>

> t: 610 834-8866 x 204

> f: 610 834-1955

> e: bdietrich@irvineandassociates.com

>

>

>

>

> -----Original Message-----

> From: jmelesky@energysentrysolutions.com

> [mailto:jmelesky@energysentrysolutions.com]

> Sent: Tuesday, December 09, 2003 2:08 PM

> To: Brian Dietrich, CIC

> Subject: Re: Big Thanks

>

> Brian:

> If you could make a short note to me regarding the effectiveness of  
> the product and give Dusty a copy for his use, it would be most  
> helpful. Many people who look at an ad are reassured when a real  
> person shares an experience.

> Regards,

> Jim

> On Mon, 8 Dec 2003 10:59:13 -0500, "Brian Dietrich, CIC"

> <bdietrich@irvineandassociates.com> wrote :

>

>> Dear Jim:

>>

>> Big Thanks to you and your son Kevin for coming out to assist me

> with my  
>> "Energy Guardian" insulation "Cap" on Sunday! You were so  
> thoughtful  
>> in helping me out.  
>>  
>> It has already noticeably improved my heat loss from the attic  
> access  
>> door. I completed the caulking and installation yesterday- and it  
> has  
>> made a HUGE difference already!  
>>  
>> Thanks again, Brian  
>>  
>>  
>>  
>> -----  
>> Brian J. Dietrich, CIC  
>> Asst. Vice President  
>> M. F. Irvine & Associates, Inc.  
>>  
>> t: 610 834-8866 x 204  
>> f: 610 834-1955  
>> e: bdietrich@irvineandassociates.com  
>>  
>>  
>>  
>>  
>>  
>

Dear Jim:

My family and I have enjoyed a more comfortable house since having the "Energy Guardian" installed last weekend. We can really tell the difference in our second floor, that is now a few degrees warmer! What a HUGE difference it has made!

Thanks again for your help with fitting this "Cap" in on Sunday!

Thanks again, Brian

**Exhibit CC**

----- Original Message -----

**From:** Jerry

**To:** jmelesky@energysentrysolutions.com

**Sent:** Monday, October 20, 2003 9:28 AM

**Subject:** Energy Guardian Works Great!

Hi Jim,

Well, we got the Energy Guardian installed on Saturday. It looks great and more importantly.. it works! I need you to email me an invoice for the Energy Guardian. (Seems like you told me \$125.) And, I still haven't received your signed copy of the release form that we had discussed. (Maybe it got lost between our fax machines.) If you've already faxed it, please fax again since I haven't received it yet. Keep care & Have a Great Monday!

Linda Copeland

Progressive Energy Solutions, Inc.

Phone: 704.825.5553

Fax: 704.825.5554

**Exhibit DD**



----- Original Message -----

From: "Stell, Jeffery A" <Jeffery.Stell@unisys.com>

To: <jmelesky@energysentrysolutions.com>

Sent: Wednesday, December 03, 2003 10:10 AM

Subject: RE: RE: RE: Pull Down Ladder Info Request

> Hey Jim,

>

> I just wanted to touch base with some feedback. The installation went  
> smoothly. I ended up needing to put an inch "foundation" around the attic  
> entrance, to raise the frame, since my ladder, when the door is closed,  
> did

> poke up a little too high for the lid. We haven't received a heating bill  
> yet, but I can say with certainty that as soon as I installed the Energy  
> Guardian, there was a NOTICEABLE difference in room temperature! Even if  
> there aren't tangible energy savings (which I have to believe there will  
> be)

> I am very glad we did this, just to make my daughter's room warmer at  
> night.

> It's a great product. The only concern I can honestly relate is that  
> because of the material involved, I'm a little worried we will damage the  
> frame (or lid) someday when moving stuff in/out of the attic. But that is  
> something we will have to just be careful about. Again, I'm really glad  
> we

> did this, and Gail told me that you were very courteous and professional  
> when you delivered the product, as you were during our e-mail  
> conversations.

> I will definitely recommend the Energy Guardian to my friends.

>

> Regards,

>

> Jeff

>

Exhibit EE

*Comfort Company  
416 Wildwood Rd.  
Washington CH, Oh 43160  
(740) 335-3852*

May 11, 2007

Mr. James Melesky  
President  
ESS Energy Products, Inc.  
P.O. Box 400  
Paoli, PA 19301

Dear Mr. Melesky:

The purpose of this letter is to clarify the results that I have experienced with your products. For over 25 years, I have worked in the residential energy conservation business. I have worked as a builder, HVAC contractor and renovated existing homes. My experience has allowed me to be a frequently requested trainer for other weatherization professionals. As you know, I am often a featured speaker at national conferences and I am intimately involved with the Department of Energy's nation Weatherization Assistance Program. I have also worked with Oak Ridge Laboratories scientists to test and evaluate numerous measures that conserve energy.

During training sessions, a major component of the time is devoted to implantation of the measures presented in class. We utilize your kits for insulating and sealing both attic push up hatches and pull down ladders. Once the measures are completed, we test the results in accordance with the strict methodology required by the Department of Energy, ENERGY STAR® and the U.S. Weatherization Assistance Program. These independent tests by numerous third party agencies prove that your kits are a national breakthrough in home energy saving.

Specifically, when we measured the results for *The Energy Guardian®* Kits for both types of attic entrances, they were far greater than any alternative either commercially available or individually constructed. Never in my 25 years of work in the weatherization business have I achieved a zero reading for the smoke stick around an attic entrance, but we get it every time with your kits. We have consistently recorded 200-400 CFM50 reductions for the hatches and 600-900 CFM50 reductions for the pull down ladders. Those results are 3-5 times better than any other measure recorded for alternative measures for these attic entrances.

To be sure, I did not believe that these reductions were attainable. The most respected scientists at Oak Ridge Laboratories as well as revered experts in the field consistently posit that no more than a 50 CFM50 reduction for hatches and a 100-200 CFM50 reduction for pull down ladders are achievable with any kit or constructed measure. I have had a number of occasions where I had to demonstrate the effectiveness of your kits in person to other experts and clients who did not believe that I could substantiate what they deemed were wild claims of effectiveness in this area.

The results are a direct result of the unique design of your kits. The lid with its lip that fits into the frame is the key to the solution.

As homes are built and/or upgraded to be tighter, air sealing the attic entrance is even more crucial to the health and safety of homes. If large amounts of air can move through the attic entrance, it creates a breeding ground for mold- a major health concern. These same air leaks also cause internal home fires to spread faster and are also the primary cause for the use of space

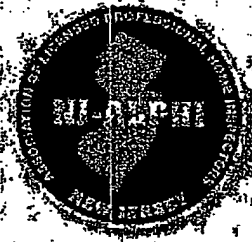
heaters. In a 2006 report from the National Fire Protection Association, space heaters accounted for more than 19,000 injuries requiring emergency room treatment and caused over 25% of all reported home heating fires, resulting in more than \$250 million in property damage. In the new construction and air sealing after market environment of today, your kits are an important health and fire safety measure.

Yours truly,

A handwritten signature in black ink, appearing to read "Vic".

*Vic Aleshire*  
*President*  
*Comfort Company*

Exhibit FF



January 16, 2006

Mr. James B. Melesky  
President  
ESS Energy Products, Inc.  
P.O. Box 400  
Paoli, PA 19301

Dear Jim:

I would like to take a moment to thank you for the recent expertly presented and extremely informative accredited training session that ESS provided to our New Jersey ALPHI members.

All members want to be aware of any item we need to check for homeowners. Learning about the heat transfer caused by the attic entrance and how to check for it fit the bill perfectly.

This was an ideal dual topic for us. The amount of energy loss, the significant cost to homeowners in summer as well as winter and the big affect on their comfort makes this a high priority item for every home inspector. It was important for us to understand how the attic entrance also can cause ice damming and roof damage. Since the attic entrance is near or in the bedrooms, it is easy to realize how it is a major reason for the use of space heaters. I know from the National Fire Protection Association report that space heaters account for many injuries, deaths and costly damage in home heating fires.

Nearly every home in our area has at least one attic entrance, so it is something that warrants careful review in each home.

While understanding a problem is the crucial first step, the segment on the standards for properly solving this heat transfer problem was very valuable. Homeowners need to be aware that a partial solution may only slightly reduce the energy loss problem. Worse still, it can also create other severe problems such as mold. Mold is a problem that home inspectors are keenly aware of and something that every homeowner needs to avoid.

I have reviewed the information regarding the Energy Guardian Kits and many members have seen your products in the field. It is clear from the industry experts' recognition by media consumer reporters and client testimonials that the ESS kits meet and exceed all standards. All homeowners should visit your web page or call for information to learn more about how to best solve the problem.

Thank you and best wishes for success with your business.

Yours truly,

Joseph Wehrhahn  
President  
NJ-ALPHI

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
12/18/2006	112297

<b>Bill To</b> Crawford-Sebatian CDC Mark Whitmer P.O. Box 4069 Fort Smith AR 72914	<b>PAID</b>	<b>Ship To</b> C-SCDC Mark Whitmer 4831 Armour Fort Smith AR 72904
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P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
1028	Net 30	DGM	12/18/2006	UPS		
Quantity	Item Code	Description			Price Each	Amount
2	BN	The Energy Guardian Standard Hatch Door Model with 2 " Frame				
3	BN	The Energy Guardian Standard Hatch with connectors-2" frame				
Please Remit Payment To ESS P O. Box 400 Paoli, PA 19301					Total	

**ESS**

P.O. Box 400  
PAOLI, PA 19301

# Invoice

Date	Invoice #
3/8/2007	112412

Bill To	101
Carolina Community Action, Inc. Kevin McCrorwey P.O. Box 933 Rock Hill SC 29731	

Ship To
Carolina Community Action, Inc. Kevin McCrowey Director 546 South Cherry Street Suite S Rock Hill SC 29730

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
30277	Net 30	DGM	3/8/2007	UPS		
Quantity	Item Code	Description			Price Each	Amount
1	BN	The Energy Guardian Pull Down Model				
1	BN	The Energy Guardian Square Hatch Door Model with 2" Frame				
2	BN	The Energy Guardian Standard Hatch Door Model with 2 " Frame				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	



**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
12/8/2006	112271

<b>Bill To</b> Handy Hands of Aiken Larry B Thomas 1670 Richland Ave. East Aiken, SC 29801	<b>PAID</b>	<b>Ship To</b> Handy Hands of Aiken Larry B Thomas 1670 Richland Ave. East Aiken, SC 29801
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P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
atl conf	Credit card	DGM	12/8/2006	UPS		
Quantity	Item Code	Description			Price Each	Amount
8	BN	The Energy Guardian Pull Down Model				
1	BN	The Energy Guardian Pull Down Frame				
8	BN	The Energy Guardian Standard Hatch 10 " Frame/with fu's				
4	BN	The Energy Guardian Standard Hatch Door Model with 2 " Frame with jfu's				
Please Provide Credit Card information for payment					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
8/10/2006	112083

<b>Bill To</b>
Community Action Agency of TCRCC Bill Anderson P.O. Box 278 Talledega, AL 35160

**PAID**

<b>Ship To</b>
Community Action Agency of TCRCC Bill Anderson 136 North Court St. Talledega, AL 35161

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
	Net 30	DGM	8/10/2006			
Quantity	Item Code	Description			Price Each	Amount
1	BN	The Energy Guardian Pull Down Model				
1	BN	The Energy Guardian Rectangular Hatch Door Model with 2 " Frame Mw/ handles				
1	BN	The Energy Guardian Rectangular Hatch 10 " Frame Mw/handles				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
11/8/2005	111409

Bill To
CVCAC David Fowler 10 Gable Place Barre, VT 05641

**PAID**

Ship To
CVCAC David Fowler 10 Gable Place Barre, VT 05641

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
35374			11/8/2005			
Quantity	Item Code	Description			Price Each	Amount
2	BN	The Energy Guardian Pull Down Model				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
1/23/2007	112356

<b>Bill To</b> West Kentucky Allied Services, Inc. Larry Baldwin P.O. Box 736 Mayfield KY 42066	<b>PAID</b>	<b>Ship To</b> West Kentucky Allied Services, Inc. Larry Baldwin 222 West Water St. Mayfield KY 42066
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P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
verbal	Net 30	MJM	1/23/2007	UPS		
Quantity	Item Code	Description			Price Each	Amount
1	BN	The Energy Guardian Pull Down Model				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
1/5/2006	111564

Bill To
Tri Valley Opportunity Council Randy Torgeson 102 North Broadway Crookston MN 56716

**PAID**

Ship To
Tri Valley Opportunity Council Randy Torgeson 102 North Broadway Crookston MN 56716

P O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
	Net 30	DGM	1/5/2006			
Quantity	Item Code	Description			Price Each	Amount
1	BN	The Energy Guardian Sidewall Model 35x63				
3	BN	The Energy Guardian Sidewall Model 36x36				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
3/14/2007	112420

<b>Bill To</b>
Medlock Construction Marvin Medlock Po. Box 3473 Oak Park, IL 60302 Storefront Delivery

**PAID**

<b>Ship To</b>
Medlock Construction Marvin Medlock 5801 West Chicago Ave. Chicago, IL 60651 Storefront Delivery

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
V/dgm	Net 30	DGM	3/14/2007	UPS		
Quantity	Item Code	Description			Price Each	Amount
2	BN	The Energy Guardian Pull Down Model/ with TAPE				
5	BN	The Energy Guardian Standard Hatch 10 " Frame with tape/fu's				
3	BN	The Energy Guardian Square Hatch Door Model with 10" Frame				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
8/15/2006	112099

<b>Bill To</b>
KiBois Community Action John Jones P.O. Box 727 Stigler, OK 74462

**PAID**

<b>Ship To</b>
KiBois Community Action John Jones 301 East Main Street Stigler, OK 74462

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
7209	Net 30	DGM	8/15/2006	UPS		
Quantity	Item Code	Description			Price Each	Amount
5	BN	The Energy Guardian Rectangular Hatch 10 " Frame JFU's & handles				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
2/26/2007	112405

<b>Bill To</b>
Indiantown Non Profit Housing, Inc Curtis Boyd P O. Box 456 Indiantown, FL 34956

**PAID**

<b>Ship To</b>
Indiantown Non Profit Housing, Inc. Curtis Boyd 15518 Ocoola St Indiantown, FL 34956

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
w	Net 30	DGM	2/26/2007	UPS		
Quantity	Item Code	Description			Price Each	Amount
6	BN	The Energy Guardian Standard Hatch Door Model with 2 " Frame				
2	BN	The Energy Guardian Standard Hatch 10 " Frame				
2	BN	The Energy Guardian Standard Hatch 10 " Frame with JFU's Penna Sales Tax 6.00%				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	



**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
3/12/2007	112415

Bill To
Mr. Warren Booth Weatherization Assistance Program Housing Authority of Utah County 240 East Center St Provo, UT 84606

**PAID**

Ship To
Mr. Warren Booth Weatherization Assistance Program Housing Authority of Utah County 735 S. University Ave Provo, UT 84601

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
4973	C O D	DGM	3/12/2007	UPS		
Quantity	Item Code	Description			Price Each	Amount
2	BN	The Energy Guardian Pull Down Model Pull Down Lid ONLY				
2	LO					
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
8/28/2006	112112

<b>Bill To</b> Community Development Authority Tim Clarenbach 109 North Main Street Hartford, WI 53027	<b>PAID</b>	<b>Ship To</b> Community Development Authority Tim Clarenbach 109 North Main Street Hartford, WI 53027
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P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
	Net 30	DGM	8/28/2006	UPS		
Quantity	Item Code	Description			Price Each	Amount
3	BN	The Energy Guardian Pull Down Model				
Please Remit Payment To ESS P O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
10/17/2006	112179

Bill To
NOWCAP Janelle Anderson 1140 Main St. Torrington WY 82240

**PAID**

Ship To
NOWCAP Janelle Anderson 1140 Main St. Torrington WY 82240

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
weatherization	Net 30	DGM	10/17/2006	UPS		
Quantity	Item Code	Description			Price Each	Amount
4	BN	The Energy Guardian Standard Hatch Door Model with 2 " Frame handles & fu's				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

ESSP.O. Box 400  
PAOLI, PA 19301

## Invoice

Date	Invoice #
11/17/2005	111432

Bill To	Ship To
Oakland Livingston Human Service Agency Housing & Energy Department 196 Cesar E. Chavez Ave P.O. Box 430598 Pontiac, MI 48343-0598	Oakland Livingston Human Service Agency Housing & Energy Department 196 Cesar E. Chavez Ave P.O. Box 430598 Pontiac, MI 48343-0598

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
20092	C.O.D.		11/17/2005			
Quantity	Item Code	Description			Price Each	Amount
2	BN	The Energy Guardian Pull Down Model				
1	WUAP	Walk Up Accessory Pack				
1	BN	The Energy Guardian Sidewall Model 35x63				
1	BN	The Energy Guardian Rectangular Hatch Door Model with 2 " Frame				
1	BN	The Energy Guardian Rectangular Hatch 10 " Frame				
Please Remit Payment To ESS P O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
9/24/2005	111312

Bill To
SCCAP, Inc Sam Hepner, Jr. Weatherization Program Director 153 N. Stratton St. Gettysburg, PA 17325

**PAID**

Ship To
SCCAP, Inc. Sam Hepner, Jr. Weatherization Program Director 153 N. Stratton St. Gettysburg, PA 17325

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
12162	Net 30		9/24/2005			
Quantity	Item Code	Description			Price Each	Amount
3	UN	The Energy Guardian Pull Down Model				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
5/9/2007	112461

<b>Bill To</b> Tompkins Community Action Fran Rice 701 Spencer Rd Ithaca, NY 14850 T B.# 124755	<b>Ship To</b> Tompkins Community Action Fran Rice 701 Spencer Rd. Ithaca, NY 14850 T B.# 124755
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P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
0436	Net 30	MJM	5/9/2007	UPS		
Quantity	Item Code	Description			Price Each	Amount
18	BN	The Energy Guardian Square Hatch Door Model with 2" Frame				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
12/20/2005	111520

Bill To
Enrichment Service Programs, Inc. Topica Crawford 900 Linwood Blvd. Columbus GA 31902

**PAID**

Ship To
Enrichment Service Programs, Inc. Topica Crawford 900 Linwood Blvd. Columbus GA 31902

P.O. Number		Terms	Rep	Ship	Via	F.O.B.	Project
		Net 30		12/20/2005			
Quantity	Item Code	Description				Price Each	Amount
1	BN	The Energy Guardian Pull Down Model					
1	BN	The Energy Guardian Rectangular Hatch Door Model with 2 " Frame					
7	BN	The Energy Guardian Rectangular Hatch 10 " Frame					
1	WUAP	Walk Up Accessory Pack					
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301						Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
11/7/2006	112216

<b>Bill To</b> ABCD, Inc. Robert Bracera/Weatherization Dept 1407 Fairfield Ave Bridgeport, CT 06604	<b>PAID</b>	<b>Ship To</b> ABCD, Inc. Robert Bracera/Weatherization Dept 873 Wood Avenue Bridgeport, CT 06604
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P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
R # 43582	Net 30	MJM	11/7/2006	DM Ground		
Quantity	Item Code	Description			Price Each	Amount
10	UN	The Energy Guardian Pull Down Model				
15	UN	The Energy Guardian Standard Hatch Door Model with 10 " Frame				
10	UN	The Energy Guardian Square Hatch Door Model with 10" Frame				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	



**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
1/9/2006	111573

<b>Bill To</b> Coastal Community Action Stacey Ellege P.O. Box 729 Newport, NC 28570	<b>PAID</b>	<b>Ship To</b> Coastal Community Action Stacey Ellege 303 Mc Queen Avenue Newport, NC 28570
--	-------------	---

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
37658	Net 30	MJM	1/9/2006			
Quantity	Item Code	Description			Price Each	Amount
4	BN	The Energy Guardian Pull Down Model for Attic Stair Lids				
Please Remit Payment To ESS P.O. Box 400 Paoli, PA 19301					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
12/8/2006	112271

Bill To
Handy Hands of Aiken Larry B Thomas 1670 Richland Ave. East Aiken, SC 29801

**PAID**

Ship To
Handy Hands of Aiken Larry B Thomas 1670 Richland Ave. East Aiken, SC 29801

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
atl conf	Credit card	DGM	12/8/2006	UPS		
Quantity	Item Code	Description			Price Each	Amount
8	BN	The Energy Guardian Pull Down Model				
1	BN	The Energy Guardian Pull Down Frame				
8	BN	The Energy Guardian Standard Hatch 10 " Frame/with jfu's				
4	BN	The Energy Guardian Standard Hatch Door Model with 2 " Frame with jfu's				
Please Provide Credit Card information for payment					Total	

**ESS**P.O. Box 400  
PAOLI, PA 19301**Invoice**

Date	Invoice #
1/31/2007	112367

<b>Bill To</b>
Opportunity Council Christopher R. Clay 1111 Cornwall Ave Bellingham, WA 98225

**PAID**

<b>Ship To</b>
Opportunity Council Christopher R. Clay 1701 Ellis Street Bellingham, WA 98225

P O. Number		Terms	Rep	Ship	Via	F.O.B.	Project
V/dgm		Credit card	DGM	1/31/2007	UPS		
Quantity	Item Code	Description				Price Each	Amount
1	BN	The Energy Guardian Pull Down Model					
1	BN	The Energy Guardian Standard Hatch 10 " Frame/jfu's					
Please Provide Credit Card information for payment						Total	

**Exhibit GG**

## Welcome to ESS, the home of the Energy Guardian™ Kits

**Energy....We all use a lot of it,  
but we need to start conserving  
it....and soon!**

Consider the facts:

In the last decade, the cost of energy doubled.

ENERGY STAR®, the US Department of Energy and other industry experts agree that the attic is the number one cause of energy loss in homes today.

The single largest source of energy loss in the attic is the entryway. This entryway can be a push up panel, a pull down ladder, a knee wall door or a permanent stairway.

This entry creates a 5-15 square foot hole in your insulation. Even when it is closed, it also creates air leaks of 12-40 square inches or more. That's like having an open window all year.

In the winter, these problems create uncomfortable drafts and allow heated air to escape. In addition to the discomfort and wasted energy, this can result in melted snow on rooftops that causes ice damming.

In the summer, super-hot air builds up in the attic- even in attics with venting and roof fans. This super-hot air then forces its way into the living area, especially when a fan or air-condition is turned on.

Finally, dust and harmful debris are able

**ESS has created a way to make  
your home more comfortable and  
save on your heating and air  
conditioning costs every year  
with *The Energy Guardian™* Kit.**



***The Energy Guardian™* Kits** eliminate the discomfort and wasted money due to interior attic accesses (pull-down ladders, attic trap doors/hatches, knee walls and walk up staircases).

***The Energy Guardian™* Kits** close your insulation gap with an R-Value of R-30.

***The Energy Guardian™* Kits** are so effective that they can payback your initial investment in a matter of months.

***The Energy Guardian™* Kits** are lightweight and easy to use.

***The Energy Guardian™* Kits** are so durable that they come with a 20-year

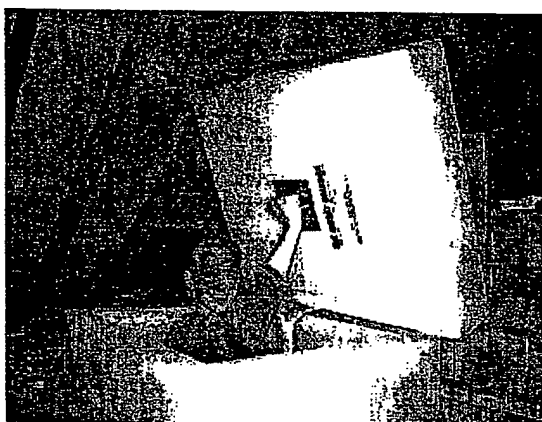
to flow freely into the home.

It's a summer and a winter problem.  
Overall, it probably costs you hundreds of dollars in wasted energy every year.

You can continue with the discomfort, wasted energy, and lost money, or consider a better alternative.

[Read what our clients have to say.](#)

[Want to learn more about how much it could be costing you?](#)



warranty.

***The Energy Guardian™ Kits*** have professional installers available through the United States.

***The Energy Guardian™ Kits*** are environmentally friendly.

***The Energy Guardian™ Kits*** have been awarded for Environmental Excellence.

***The Energy Guardian™ Kit*** is made in the U.S.A.

[How To Order \*\*\*The Energy Guardian™ Kit.\*\*\*](#)

**Make your home more comfortable, conserve Energy, and save Money with *The Energy Guardian™ Kit!!!***

As seen on [Fox News Channel's Fox & Friends,](#)  
[Philadelphia's CBS 3's 3 On Your Side](#)  
and [Philadelphia's NBC 10 Consumer Alert](#)

[Place an Order On-Line NOW!](#)

[\[Home\]](#)[\[Solutions\]](#) [\[About ESS\]](#) [\[ENERGY STAR\]](#) [\[To Learn More\]](#) [\[FAQ\]](#) [\[BusinessPartners\]](#)

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## Solutions

In this section we provide more detailed information about the following topics listed below. If you choose to go directly to one subject matter, simply click on any of the following:

### The Cost of Attic Accesses to You:

Comfort  
Energy Loss  
Money

### The Problem: Energy Loss Through Attic Accesses

### The Solution: *The Energy Guardian*™ Kit

Specifications for the attic ladder cover  
Specifications for the attic hatch cover  
Installation  
*The Energy Guardian*™ Kit- A Great Investment  
Durability  
Good for You and the Environment

### ***The Cost of Attic Accesses to You: Comfort***

You have a gaping hole in both your thermal barrier and air seal in the most important area of your home. This allows heat to escape in cold weather and hot air to enter into your home in the warm months. This makes your home uncomfortable during both summer and winter months.

In the winter, the area or rooms near your attic ladder or hatch access are probably cold and drafty. If you have a two-story home and the second floor is not as warm as the first floor in the winter, then it should be clear to you that something is wrong. It defies logic since heat rises. The attic ladder or hatch is almost certainly the problem. If this is the situation in your home, then you now understand how much energy you are wasting in order for this phenomenon to occur.

In the summer, the same areas are probably hotter than the rest of your home. It can be 50-100 degrees hotter in your attic than what you want in your living area. During heat waves, the hot air accumulates in the attic and dissipates over time as the outside temperature decreases. Until that occurs, the hot air will be pushed through the opening for your attic ladder or hatch and it will spread in the adjacent rooms and area. You may have to set your thermostat lower than you want in order to make the area comfortable.

### ***The Cost of Attic Accesses to You: Energy Loss***

The loss of comfort and energy is caused by both a lack of insulation as well as air leakage. It may be decreasing the effective insulating capability of your attic by as much as 30%. If the attic access is not properly sealed, you will typically increase air leakage for your entire home by 15% or more. For details, go to [What's The Proof.](#)

Having your attic access unsealed and without proper insulation is like leaving your window open. In this case, the window is in your attic, which is the most important area of your home to insulate and seal. Most of us are not surprised that there is a draft from a window that is not closed completely during the winter. It should come as no surprise when your "attic window" causes a greater loss of energy and more discomfort.

The result is that you use far more energy than you should and spend hundreds or thousands of dollars each year to heat your attic in the winter and cool it in the summer.

There's one more problem. Since you use your furnace and air conditioner more often, they wear out sooner. These are very expensive devices to replace. You have an easy and inexpensive solution.

If you spend \$2,500 for heating and cooling your home and you reduce consumption by just 10%, you will save \$250 year after year after year. Take a moment and calculate how much you may be wasting on your utility bill.

### ***The Cost of Attic Accesses to You: Money***

How much is it costing you?			
If Annual Heat and AC costs are:	% Wasted by Attic Access	Cost to you	
		1 year	5 years
\$2,500	10%	\$250	\$1,250
	20%	\$500	\$2,500
	30%	\$750	\$3,750
\$3000	10%	\$300	\$1,500
	20%	\$600	\$3,000
	30%	\$900	\$4,500
\$4000	10%	\$400	\$2,000
	20%	\$800	\$4,000
	30%	\$1,200	\$6,000



\$5000	10%	\$500	\$2,500
	20%	\$1,000	\$5,000
	30%	\$1,500	\$7,500

The cost of energy doubled during the last decade. We don't know how much energy will increase in the next decade, but as recent market activity has shown us, it is not likely a matter of if it will increase, but rather by how much. The more the cost of energy rises, the more you will save with ***The Energy Guardian™*** Kit.

### ***The Problem: Energy Loss Through Attic Accesses***

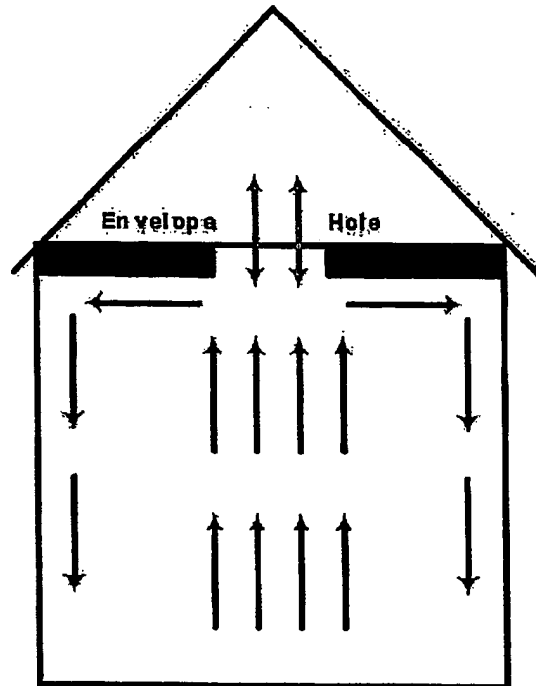
A properly insulated and sealed home creates a protective barrier for your home to keep cool air inside during the summer and warm air inside during the winter. Industry experts in the ENERGY STAR® program refer to this protective barrier as an "envelope". An effective envelope requires both a proper amount of insulation and elimination of air leaks. Without both of these solutions, your living area will have uncomfortable drafts and temperature variations. This is not just a cold weather issue. It is just as important for hot weather. Therefore, you need to seal and insulate your attic access just as much if you live in southern Florida in the summer or northern Wisconsin in the winter.

Due to the natural movement of air in your home, improper R-value insulation and air leaks will cause you to lose more energy than any other area in your home. An everyday example is to consider how you dress to stay warm on a cold windy day. You need something to stop the wind from getting to your skin and you also need clothing to keep your body heat with you. Typically, a windbreaker and sweater will provide the protection you need in this case. The windbreaker rids you of the air leaks you need from the wind and the sweater serves as a thermal barrier to keep the body heat in you. Without both articles of clothing, you would not stay warm. This same simple example applies to your home.

The plywood or drywall cover for your attic trap door or pull down ladder likely has an R-Value of .5 or less. If your attic has insulation with an R-Value of 30, then the R-Value of your attic opening is only 1/60th of the rest of the attic. In addition, you have a large opening for air to flow through. For attic ladders, you have an eight square foot opening and attic hatches four square feet or more.

What do you think the effect is on your insulating effectiveness? The diagram below illustrates the problem:

#### **Compromised Insulation Barrier**



## ***The Solution: The Energy Guardian™ Kit***

ESS Energy Products recognized this problem and has created a line environmentally friendly, low cost and complete solutions for these attic accesses called ***The Energy Guardian™ Kits***. They are so unique that there are patents pending. ***The Energy Guardian™ Kit*** fits over the attic access opening. By blocking the escape of energy, it seals the insulation envelope in your attic that is needed to maintain a constant temperature and humidity in your living area.

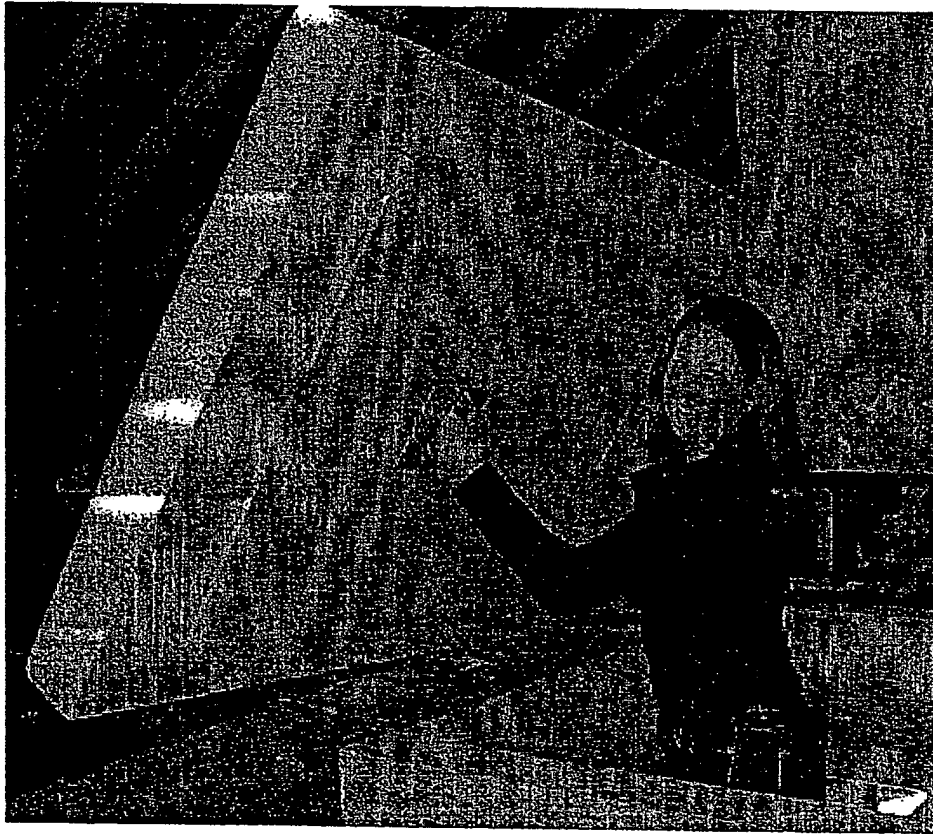
The models consist of a frame and lid. The lid has a unique lip, so that this lip fits securely into the frame. This design is important to you for several reasons. First, the frame serves as a barrier or dam to keep insulation from entering into your living area. With a two-piece unit, you only pick up the lid when you enter and exit the attic. This makes it less bulky and lighter to use. When you enter your attic through a pull down ladder or hatch opening, you simply grasp the handle(s) of ***The Energy Guardian™ Kit's*** lid, pick it up and set it on the attic floor. When you leave the attic, simply reverse the process and set the lid into the form fitted frame. When it closes, you can feel the snug fit. It's almost like closing a vault door. You create a tight air seal without having to secure any tightening straps.

While ***The Energy Guardian™ Kit*** is simple in concept, it is very unique in its design and results. It is easy to use, effective, safe and durable. It meets the standards of CFR 440 App.

A for the Weatherization Assistance Program as well as the standards for the International Builders Code to include flame spread index and smoke developed index.

*The Energy Guardian™* Kit has been awarded for Environmental Excellence.

### ***Specifications for The Energy Guardian™ Attic Ladder Cover***



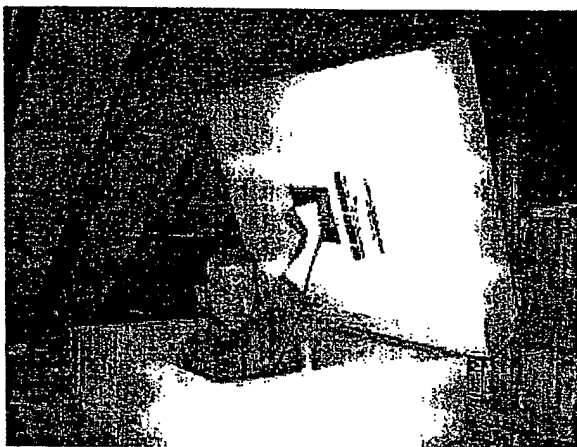
*The Energy Guardian™* attic ladder cover will fit over any opening that is less than 35 inches by 63 inches. There is no known attic ladder made in the USA that requires a larger footprint.

It allows as much as 7 ½ inches of clearance for your ladder to fit in its folded position above your attic floor or floor joists. There is at least one commercially available model of pull down ladder that requires as much as 14 inches for clearance. While these are rare, you do not need to worry. You only need a second standard frame. With this, you then have 16 ½ inches of clearance.

*The Energy Guardian™* Kit is lightweight and easy to use. The lid weighs approximately 10 lb. and the frame approximately 5 lb.

**The Energy Guardian™ Kit** is both a thermal barrier as well as an air sealant. The thermal resistance value is R-30.

### ***Specifications for The Energy Guardian™ Hatch Cover***



If you have a push up hatch panel, you probably realize that there is no standard size for these attic accesses. Typically, they are cut between your floor joists and are approximately 22 ½ inches or 14 ½ inches in one dimension and anywhere from 18 inches to 30 inches in the other dimension.

It would not seem possible to make a product that would fit all of these various dimensions without measuring and extensive cutting. That is not the case with **The Energy Guardian™ Kit**. Thanks to its design, it can fit any hatch opening that measures less than 28 ½ by 32 inches. Please note that the relevant dimensions are the opening in the attic. If you measure from your closet or living area, you will include your framing which can add 6 inches to the actual dimensions.

All component parts are small enough that they can fit through any opening that is at least 14 ½ inches in one dimension. The result is that you can easily bring the lightweight parts into your attic. Once assembled and resting in your attic over the hatch, it is big enough to cover a very large opening so long as it is less than 28 ½ by 32 inches.

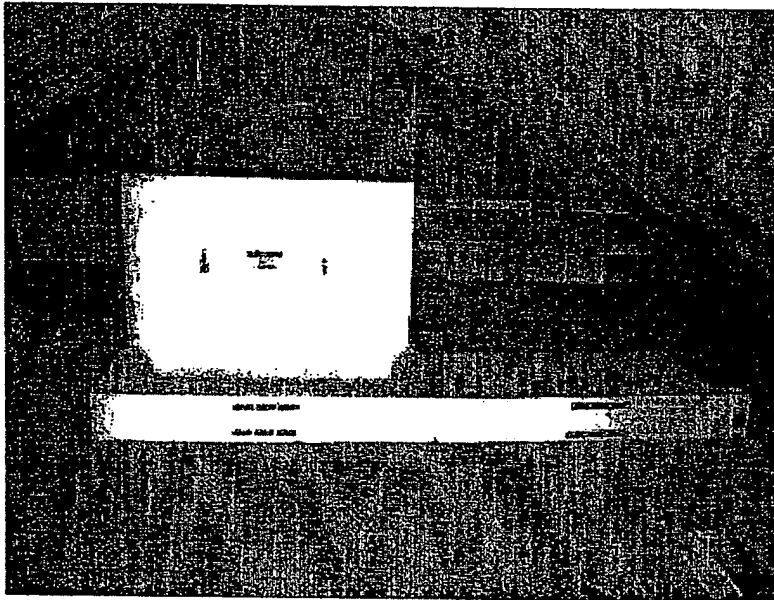
You have a choice of frames in two heights. If your hatch is tucked close to the eaves of your home, you may not have much clearance between your attic floor joists and rafters. In this case, you can buy a frame that is only 2 inches high. With the lid, you only need 7 inches of total clearance.

If your hatch opening is in an area with plenty of clearance and you plan on adding additional insulation, then you can buy a frame that is 10 inches high. For this frame, you need 15 inches of clearance.

**The Energy Guardian™** Attic Hatch Cover is lightweight and easy to use. The lid weighs approximately 4 lb. and the frame approximately 1 lb for the short frame and 2.5 lb for the tall frame.

**The Energy Guardian™** Attic Hatch Cover is both a thermal barrier as well as an air sealant. The thermal resistance value is R-30.

### ***Specifications for The Energy Guardian™ Walk Up Stairs Cover***

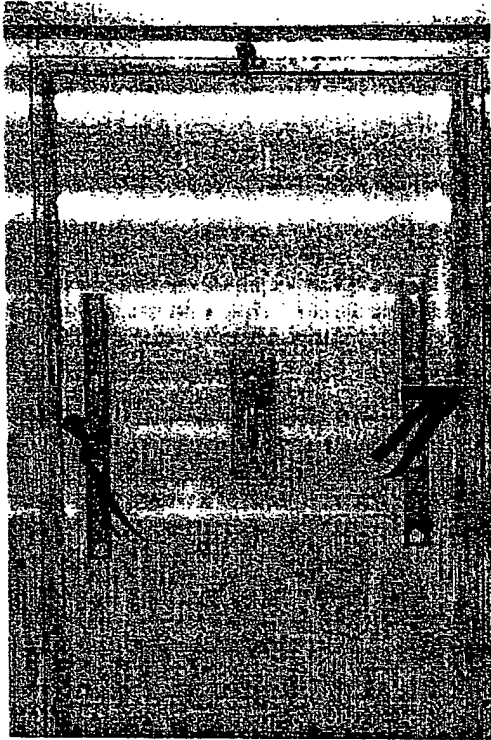


**The Energy Guardian™** Walk Up Stairs Cover fits any footprint 94 1/2 inches by 44 inches or smaller. If you have an opening larger than this, we sell accessory packs to cover larger dimensions in 32 1/2 inch by 44 inch increments.

**The Energy Guardian™** Walk Up Stairs Cover is lightweight and easy to use. The lid weighs approximately 10 lb.

**The Energy Guardian™** Walk Up Stairs Cover is both a thermal barrier as well as an air sealant. The thermal resistance value is R-30.

### ***Specifications for The Energy Guardian™ Knee-Wall Cover***



**The Energy Guardian™ Standard Knee Wall Cover** fits any opening 36 inches by 36 inches or smaller. **The Energy Guardian™ Oversized Knee Wall Cover** fits any opening 35 inches by 63 inches or smaller.

**The Energy Guardian™** Knee Wall Cover is lightweight and easy to use. The lid for the standard kit weighs approximately 5 lbs and the oversized lid weighs approximately 9 lbs.

**The Energy Guardian™** Knee Wall Cover is both a thermal barrier as well as an air sealant. The thermal resistance value is R-24.

### ***Installation of The Energy Guardian™ Kits***

The Energy Guardian™ Kit arrives with all component parts, detailed installation instructions and a 20-year warranty card.

While it is straightforward to assemble, we recommend using certified installers to install the product and to inspect and perform very important air-sealing services in the immediate area. Ask for a certified installer when you place your order.

### ***The Energy Guardian™ Cover - A Great Investment***

We cannot predict the weather or how you maintain your home from one year to the next, but we do know that **The Energy Guardian™ Kits** eliminate a major source of energy loss. Most clients report a payback on the investment in less than one year. **The Energy Guardian™** kits provide you with the benefits from the moment you install it and for as many years as you continue to use it.

If you sell your home, make sure that your real estate agent knows that you have installed **The Energy Guardian™** Kit and explains the benefits to all prospective buyers. Save copies

of your utility bills so that you can show your specific results.

How much can you save?			
If Annual Heat and AC costs are:	% Wasted by Attic Access	Potential Savings to you	
		1 year	5 years
\$2,500	10%	\$250	\$1,250
	20%	\$500	\$2,500
	30%	\$750	\$3,750
\$3000	10%	\$300	\$1,500
	20%	\$600	\$3,000
	30%	\$900	\$4,500
\$4000	10%	\$400	\$2,000
	20%	\$800	\$4,000
	30%	\$1,200	\$6,000
\$5000	10%	\$500	\$2,500
	20%	\$1,000	\$5,000
	30%	\$1,500	\$7,500

The U.S. Department of Energy estimates that the cost of an energy audit alone can be as much as \$500. [Click here for more information.](#) (Please scroll down to Professional Energy Audits - Thermographic Inspection). Any work that is needed to improve your home is not included in that cost.

***We agree with the validity of this test. However, it is important to point out that the cost of The Energy Guardian™ Kit is less than the above estimate for just an energy audit.***

The Energy Guardian™ Kit is further proven as a result of stringent testing and verification. It has undergone a blower door test by a government agency that projects what the energy savings will be with the product. [Click here to see results of the Blower Door Test.](#)

In addition, infrared photos have been taken and they reveal how dramatic the effect of The Energy Guardian™ Kit has been in other homes. [Click here to see dramatic Infrared Photos](#).

## ***The Energy Guardian™ Kit- Durable***

The Energy Guardian™ Kits are made of very dense EPS. They are not only lightweight, but also very durable. We have had a 200-lb+ man stand on it and it didn't crack or break. A professional did this in a test environment. **Do not do this as you could fall and suffer injury.**

***The Energy Guardian™*** Kits come with a 20-year manufacturer's warranty. Simply fill out the warranty card that comes with the product and return it to ESS.

## ***The Energy Guardian™ Kits- Good for you and the environment***

***The Energy Guardian™*** Kits are made with state of the art materials with attributes designed for your comfort and safety. ***The Energy Guardian™*** Kits are made with the same material that has proven to be safe and effective in household items such as refrigerators and even some children's toys.

***The Energy Guardian™*** Kits are environmentally friendly. Have you ever opened your attic trap door or pull down ladder and experienced the insulation particles dropping on you and into your living area? These particles can burn your eyes, irritate your skin, and even affect your breathing.

***The Energy Guardian™*** Kits provide you with a protective barrier or dam with its frame. Harmful insulation is kept in the attic and stopped from entering your living area.

Once you install ***The Energy Guardian™*** Kit, you will use less energy and help save our precious natural resources. You will save on both air conditioning and heating expenses so long as you have a reasonably insulated and sealed attic.

***The Energy Guardian™*** Kits were awarded for Environmental Excellence.

Once you install ***The Energy Guardian™*** Kit, you will have a more comfortable home.

Why wait? Start making your home more comfortable while saving energy and money for you!

[Click here to read testimonials from a few of our customers.](#)



[Click here to see dramatic Infrared Photos.](#)

[Click here to see results of the Blower Door Test.](#)

[I want to buy one now.](#)

[I want to talk to someone about \*\*\*The Energy Guardian™ Kit.\*\*\*](#)

[I want to resell \*\*\*The Energy Guardian™ Kits.\*\*\*](#)

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Updated 02JAN2007

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	:		
James B. Melesky	:		
Appln. No. 10/024,478	:	Art Unit:	3637
Filed: 21 December 2001	:	Examiner:	Phi A
For: INSULATION COVER FOR ATTIC CLOSURES	:	Docket No.:	82/1376US
	:		Formerly: 13811

Commissioner for Patents  
Alexandria, VA 22313


**Declaration of Prior Invention in the United States to Overcome Cited Patent**  
**(37 C.F.R. §1.131)**

Being of legal age, I, James B. Melesky, declare and state as follows:

1. This declaration is to establish completion of the invention described in the above referenced application in the United States, at a date prior to June 1, 2001, a date prior to the effective date of United States Patent 6,578,327, cited by the Examiner.
2. On my own, in regard to an attempt to overcome various disadvantages of attic insulation, I conceived of an insulating cover for an attic access opening comprising a continuous frame and removable closure member with a depending central portion.
3. I had a prototype of this device constructed, in accordance with my instructions and designs. I hired Thomas A. Bowman, Jr. to construct the prototype device at a time prior to June 1, 2001. Mr. Bowman completed construction prior to June 1, 2001. I paid Mr. Bowman for his services in helping me construct the prototype.
4. Exhibit A hereto provides a true and accurate copy of the invoice provided by Mr. Bowman for his work on the prototype. Also included is a true and accurate copy of an invoice from the Home Depot for the purchase of raw materials used in constructing the prototype. I state that the dates redacted from these copies, but present on the original documents, are prior to June 1, 2001.
5. The prototype produced by Mr. Bowman is substantially identical to that depicted in the photographs of Exhibit B.

6. I began using the prototype device in my home prior to June 1, 2001.
7. My neighbor, a man by the name of Scott Ray Hall, saw the prototype device in the attic of my home prior to June 1, 2001. Mr. Hall has provided a declaration to this effect which is attached as Exhibit C.
8. My conception, construction, and use of the prototype device occurred in the United States of America.
9. I believe the complete prototype device was an actual reduction to practice of an embodiment of the invention of which I had conceived and claim in the instant patent application.
10. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

6/12/06  
Date

  
James B. Melesky  
Inventor of U.S. Patent App. Ser No. 10/024,478

**Exhibit A**

# Thomas A. Bowman Co.

☐ Quotation

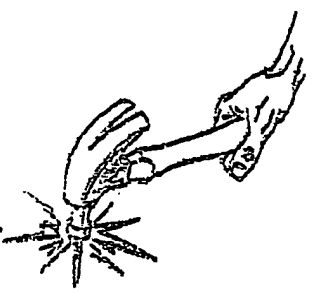
☒ Invoice

Customer Name Patricia Clever Date 1/21/71

Address P.O. Box 400  
PAoli, PA. 19301

Phone (610) 993-9585

610-415-9705



Quantity	Description	Price	Amount
	Professional Services! for the Period from To		\$525
	12/1/71		
			REDACTED
	TOTAL		\$525
	TAX		—
	TOTAL		\$525



Thomas A. Bowman Jr.  
Interior & Exterior Improvements  
Dry Wall • Painting • Lawn and Garden  
General Landscaping • Insured  
610-415-9705

Signature \_\_\_\_\_

Date \_\_\_\_\_

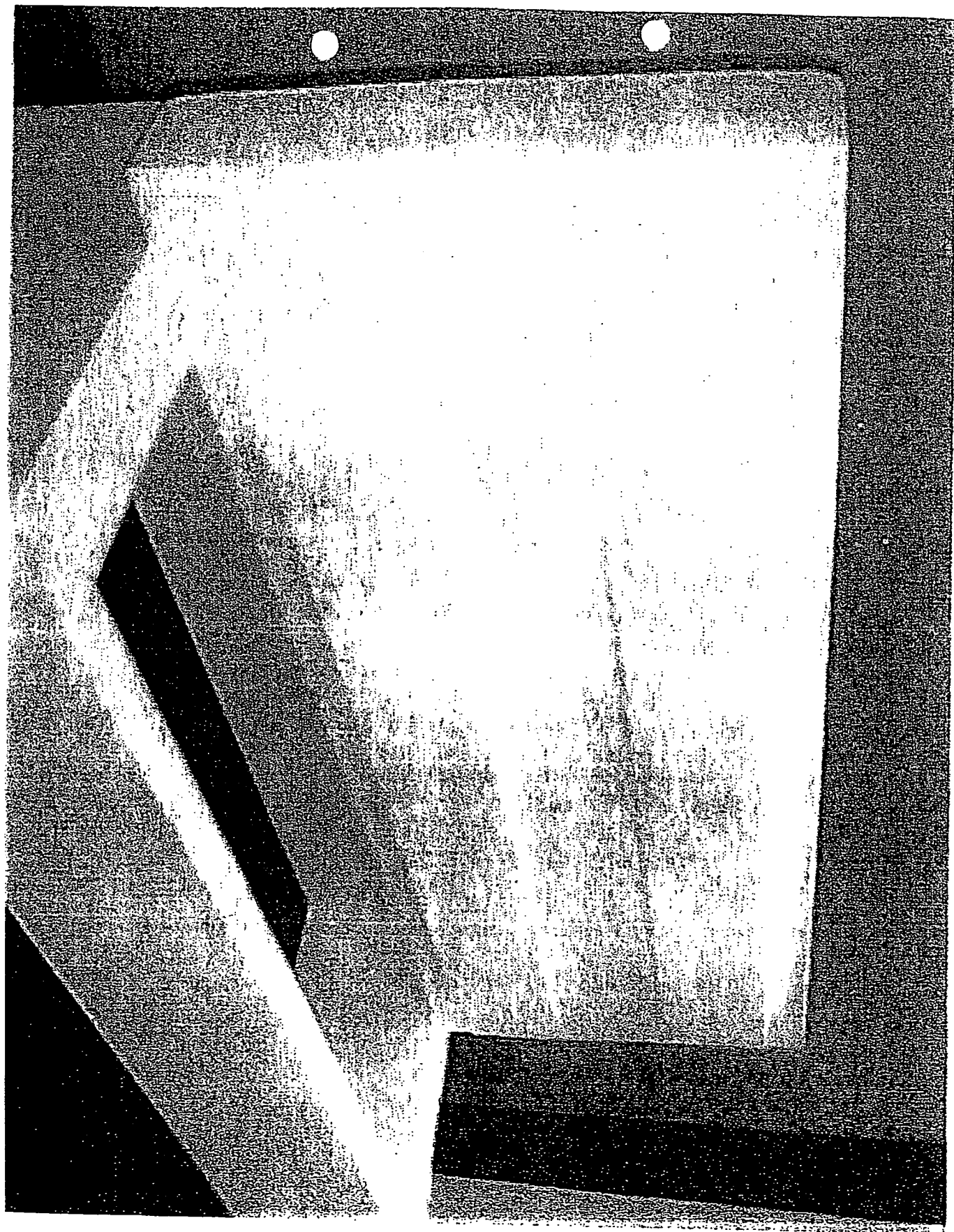
Service Establishment and Location	
THE HOME DEPOT #4119FRAZIER	PA
Name of Contact	
HOME SUPPLIES	
S/R # 2373080148	
TOTAL DUPLICATE AMOUNT	\$170.48

REDACTED

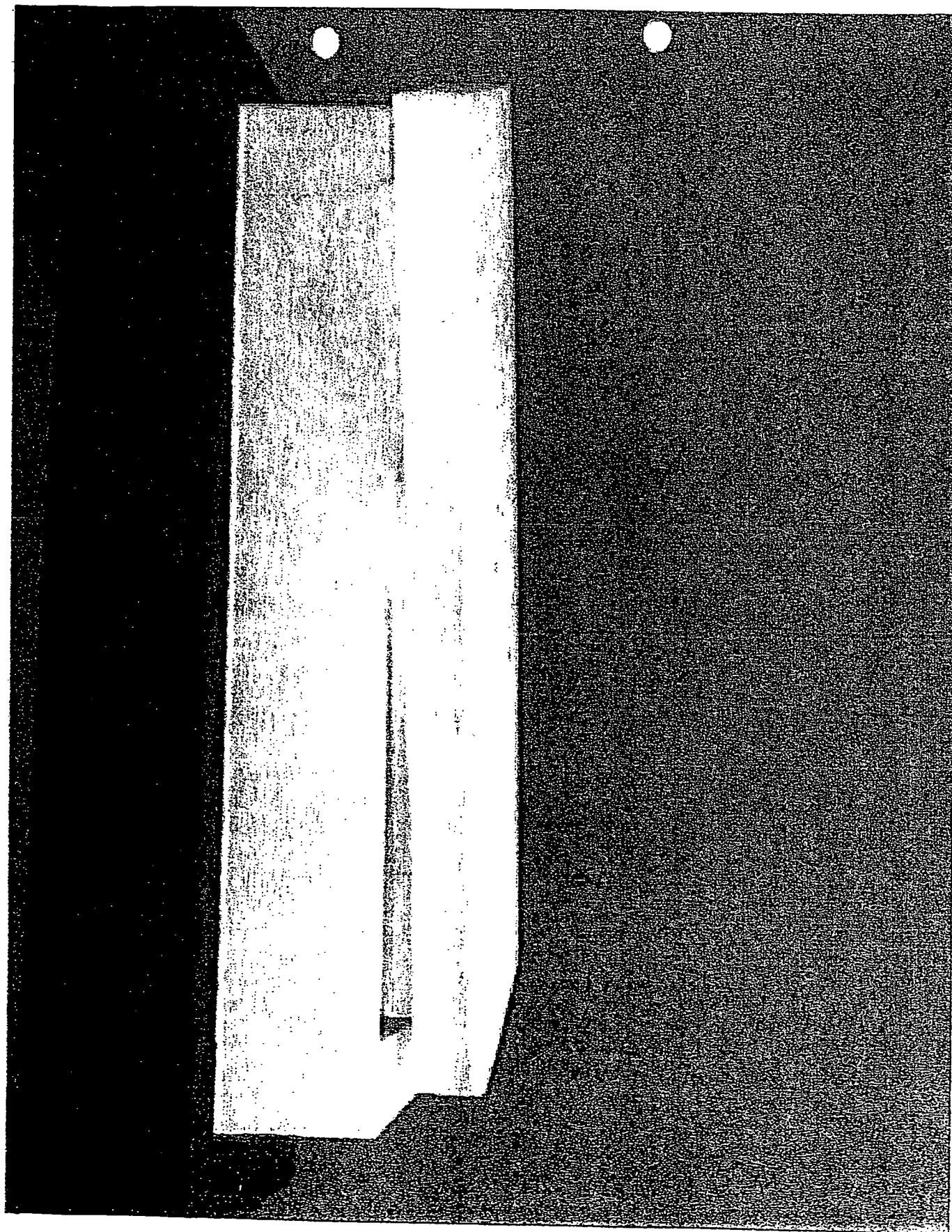
C

C

## Exhibit B







**Exhibit C**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:		
James B. Melesky	:		
	:		
Appln. No. 10/024,478	:	Art Unit:	3637
	:		
Filed: 21 December 2001	:	Examiner:	Phi A
	:		
For: INSULATION COVER FOR ATTIC	:	Docket No :	82/1376US
CLOSURES	:		Formerly: 13811

Commissioner for Patents  
Alexandria, VA 22313

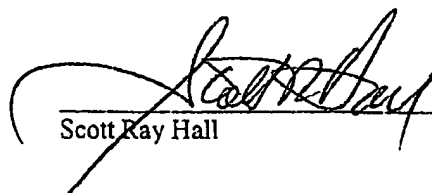
**Declaration of Non-Inventor in Support of Prior Invention in the United  
States to Overcome Cited Patent  
(37 C.F.R. §1.131)**

Being of legal age, I, Scott Ray Hall, declare and state as follows:

1. This declaration is to establish completion of the invention described in the above referenced application in the United States, at a date prior to June 1, 2001, a date prior to the effective date of United States Patent 6,578,327, cited by the Examiner.
2. I reside in Malvern, Pennsylvania near Mr. James B. Melesky, the listed inventor of the above referenced patent application.
3. I am not an inventor of the invention in the above referenced patent application and have no financial or other interest in the issuance of the above patent application as a United States patent and provide this declaration of my own free will.
4. Prior to June 1, 2001, I was present in Mr. Melesky's home and saw a device substantially identical to that shown in the photographs of Exhibit A in place in his attic and covering the attic opening.
5. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false

statements may jeopardize the validity of the application or any patent  
issuing thereon.

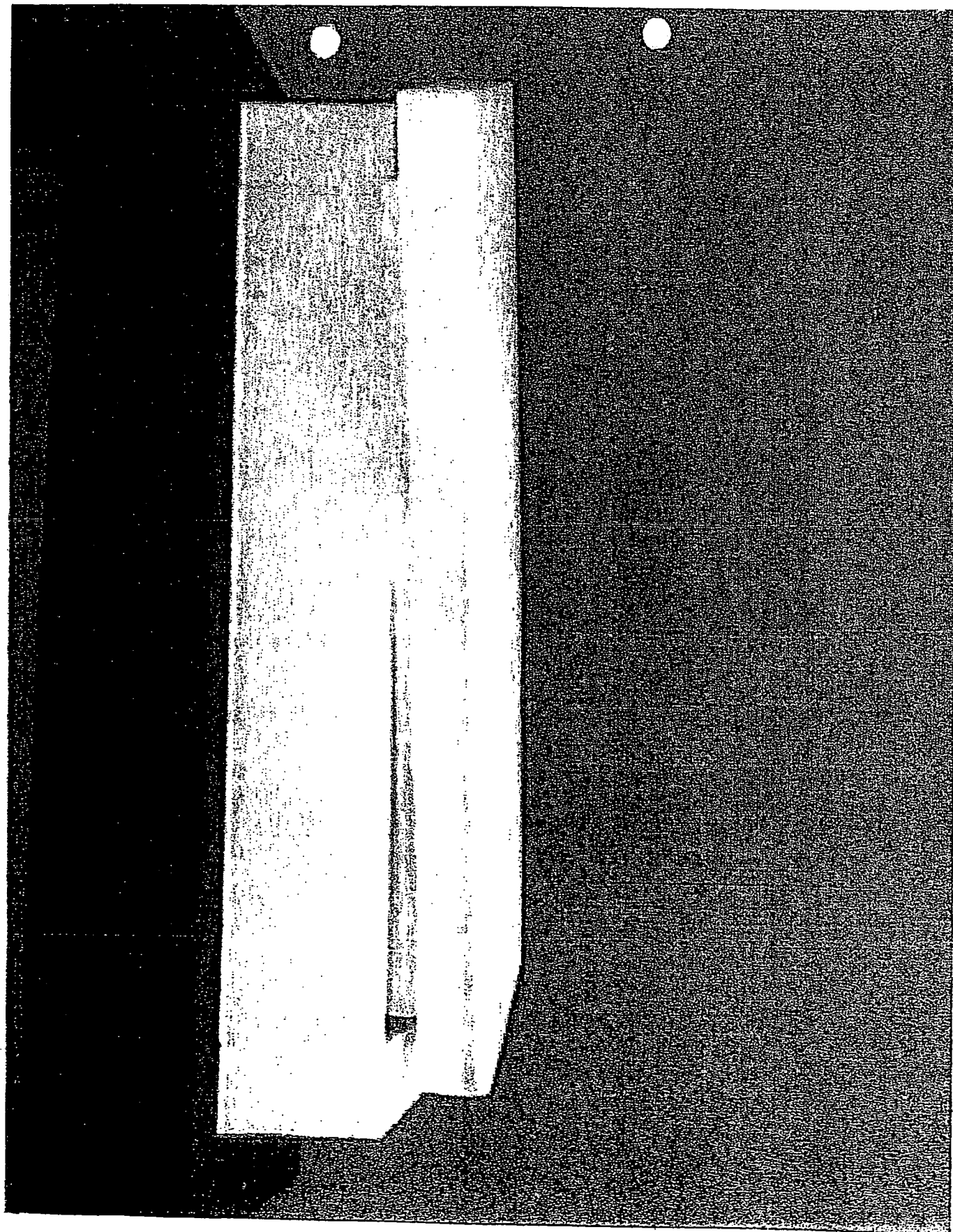
6-12-06  
Date

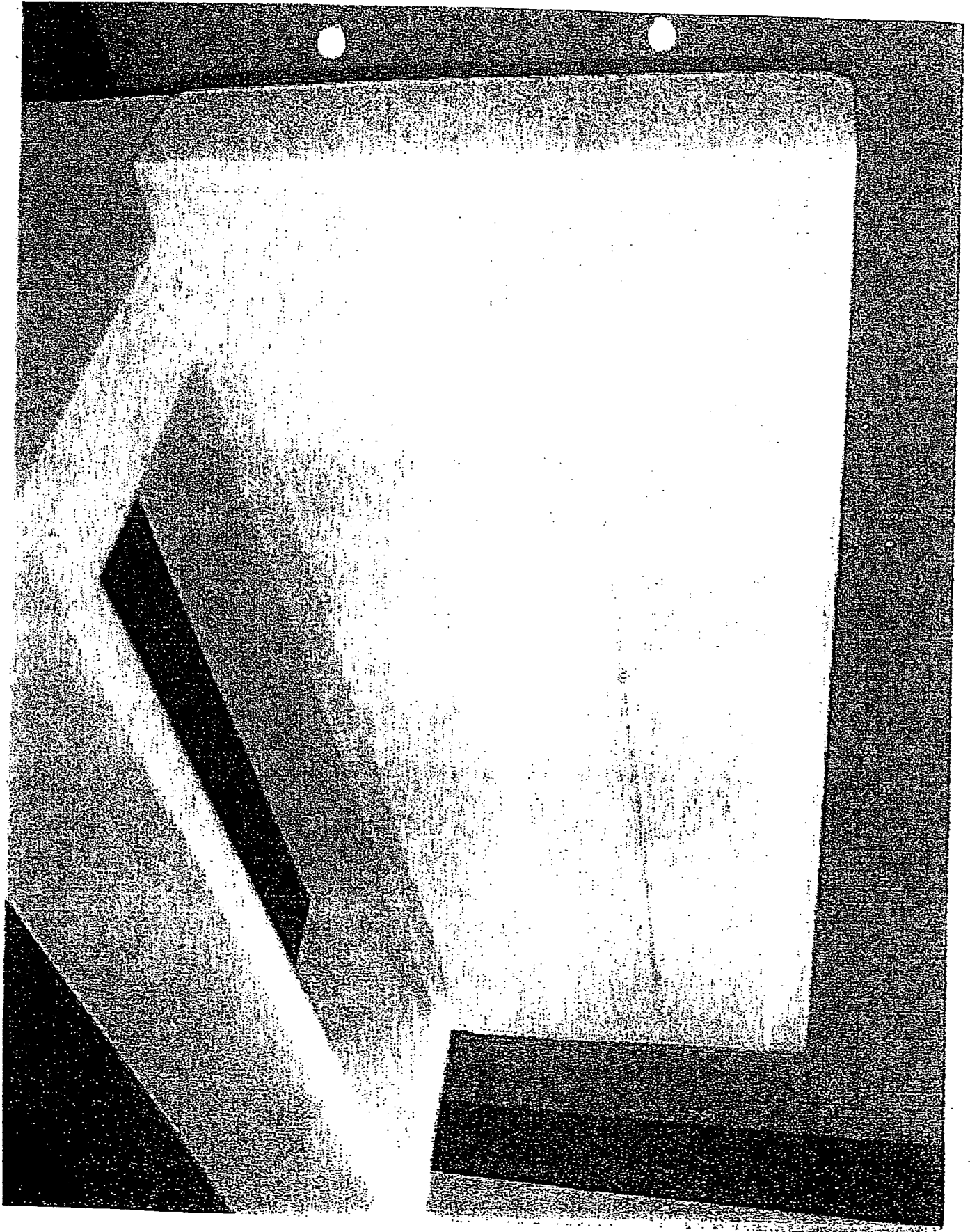
  
\_\_\_\_\_  
Scott Ray Hall

C

C

## Exhibit A





**X. RELATED PROCEEDINGS APPENDIX**

None.



PCL XL error

Subsystem: GEDI

Error: InsufficientMemory

Operator: EndSession

Position: 147763